Banca Nazionale del Lavoro

Quarterly Review

ROME

BANCA NAZIONALE DEL LAVORO

QUARTERLY REVIEW

No. 42 September 1957

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All communications regarding the Review should be addressed to Banca Nazionale del Lavoro, Ufficio Studi, Roma, Via Vittorio Veneto, 119.

Editor: Dott. LUIGI CERIANI - Ufficio Studi, Banca Nazionale del Lavoro

The "Keynesian" Analysis of Italian Economic Problems

I.

During my period of study in Italy, I have encountered frequent concern among Italian economists with the applicability of "Keynesian" analysis to the study of Italian economic problems. Almost invariably the opinion is expressed that Keynesian analysis, which occupies such an important role in Anglo-American economics, is either thoroughly inapplicable, or is at best incomplete or misleading in its application to the current pressing economic problems of Italy. At first rather skeptical of this conclusion, I have now become more sympathetic with it. However, I believe that different Italian economists have meant different things by "Keynesian" analysis, and have rejected it for different and not always correct reasons. That particular element of Keynesian analysis which now seems to me most questionable in its application to the Italian situation is, incidentally, retained in the analysis of many Italian economists who most vigorously reject Keynesian economic thought and policy.

I do not propose to deal here with the work of particular Italian economists, but only with ideas that, in my modest and perhaps unrepresentative sampling of argument and opinion, seem to have some currency. I hope that I will not be considered to be tilting with windmills.

Both the Italian economists who are concerned with Keynesian economics and I need perhaps to specify more concretely what we mean by "Keynesian analysis". All of us, I think, restrict the term to the Keynes of the "General Theory of Employment, Interest, and Money" (rather than the Keynes of the "Treatise on Money" or other earlier works); and all of us include in the term the works and ideas of some of the earlier and more enthu-

siastic Keynesian disciples. Where we draw the line between "Keynesian" and merely "post-Keynesian" is a difficult matter; but for present purposes I doubt that any precise drawing of lines is crucial to the argument.

In my view, Keynesian analysis has a number of elements or characteristics. Some of these are methodological; others involve particular substantive assumptions about the nature of the economic institutions and structure and the behavior of the economic subjects with which the analyst is concerned. Without attempting to be systematic or comprehensive, it seems to me that the methodological elements include the conceptual tool of equilibrium (that is, a static analysis), a limitation to the short run, an extreme degree of aggregation, a reliance upon certain identities which appear in the national accounts, and a primary concern with spending behavior rather that with the flow of funds. Among the substantive elements, the most original and wellknown is the idea of the "consumption function" — the view that the primary determinant of consumer spending is consumer income, and that the relationship between income and consumption exhibits considerable stability. Some of the other substantive assumptions about behavior are more traditional — such as profit maximizing behavior by firms, and the rational management of portfolios by wealth owners (1). Among the assumptions relating to economic structure, a crucial one is that output is generally limited by shortages of labor rather than of capital facilities.

Some of these and other elements of the Keynesian analysis are discussed below in relationship to Italian problems, particularly the problems of inflation and unemployment. In section II, I try to show how an appropriately broadened Keynesian analysis can be applied to the Italian economy as well as to the British or American, to the economic problems of 1957 as well as to those of 1933. But in section III, I indicate what may be a fundamental deficiency of this broadened model when applied to problems like the current ones of Italy. Perhaps the analysis can be still further enlarged to escape this difficulty. But the resulting framework may no longer be recognizable as Keynesian.

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(1) However, Keynes suggested a new element of rational behavior in a world of change and uncertainty.

II.

Some Italian economists describe Italy's major economic problem as a shortage of saving. When they speak of a shortage of saving, they often mean a shortage of loanable funds relative to the demands of borrowers: government, and business firms seeking funds for investment. The temptation, these economists say, is to use money creation (directly or indirectly) to supply the required funds. At least beyond some point, money creation is inflationary. Therefore, the shortage of saving threatens inflation.

An economist in the Keynesian tradition prefers to describe the matter somewhat differently. He says that, at any given time, an economy has a certain total productive capacity for final goods and services. At least to some extent, this capacity can be used to produce, alternatively, goods for consumers, goods for government use, or goods for investment. To simplify, let us call goods produced for government either for consumption or investment. Thus the total productive capacity of the economy can be used either for C (consumption) or I (investment). When productive capacity is already employed to its limit, any attempt to increase spending on either C or I, without simultaneously reducing the other type of spending, is inflationary, because a fixed supply of goods is confronted with an increased aggregate demand. This is true whether or not the increased aggregate demand is accompanied by an increase in the supply of money.

These two ways of describing the matter can be seen to be formally identical, when we recognize that saving is the difference between total output (or income) and consumption expenditure. That is, S (saving) equals Y (total output or income) minus C (consumption). To say that I tends to exceed S is to say that I tends to exceed Y minus C, which means that I plus C (total spending) tends to exceed Y (output). Despite their formal identity, the latter way of putting it — which I call the " spending approach " — seems to me to be more helpful than the former way — which we might call the " flow of funds " approach. For the spending approach focusses attention directly on spending decisions, on productive capacity, and on the supply and demand for *goods* (rather than funds). The flow of funds approach, on the other hand, often gets confused in " velocities ", " forced saving ", and

similar vague concepts. And when it comes to defining the crucial point beyond which money creation is inflationary, the flow of funds approach has, in effect, to convert itself into the spending approach.

Although some Italian economists may reject Keynesian analysis because it concentrates on spending decisions rather than on tracing flows of funds, I personally consider this an invalid ground for rejection. Because a full reconciliation and evaluation of the two approaches would require considerable space, I limit myself here to the mere expression of my conclusion, which is that the Keynesian spending approach is superior whether applied to Italian or American or Russian economic problems. However, I am the first to recognize that which approach we use is largely a matter of taste. Concepts and approaches are merely tools. Some tools may be sharper than others, or fit the hand better; but even dull tools can do a good job in the hands of a real craftsman. Wicksell, for example, used the flow of funds approach; but he understood clearly (better than did Keynes, a generation later) the relationship between the two approaches, and could switch easily from one to the other.

Regardless of tools, and who fashioned them, the *substantive* economic problem discussed in the preceding paragraphs is a very different one than that which originally attracted most of the attention of Keynes (in his " General Theory ") and of most Anglo-American Keynesians, at least until recently. Rather, the problem of original interest to Keynes was the situation where total demand (*C* plus *I*) does not tend to exceed, but rather falls short of the economy's productive capacity. In this case there is a waste of productive capacity (2). There can be an increase in both *C* and *I*, or either can increase without a decrease in the other. Since *Y* can rise, and almost surely will if *I* does, one can correctly say that *I* can create its own *S*. However, this is the flow of funds again. I still prefer the spending approach, which merely says that spending for *C* and *I* may either tend to exceed or may fall short of produc-

(2) I do not discuss here Keynes' fundamental thesis, which was that such waste of productive capacity can easily arise. Twenty years of polemics have left his main argument to this effect relatively undamaged. This argument showed how and why the automatic correctives (flexible interest rates and flexible wages and prices), relied upon in " Classical " analysis to maintain an adequate and stable level of demand, might fail to operate. The same argument implies, of course, that excessive aggregate demand (threatening inflation) will not be automatically eliminated, either.

tive capacity. In the latter case, spending may increase without the demand for goods exceeding the supply, thus without creating an inflationary rise of prices (regardless of what happens to the supply of money). To the extent that Keynesian analysis was originally primarily concerned with such situations, and to the extent that this is not the case in Italy, then in that sense I agree that Keynesian analysis is inapplicable. However, the Keynesian framework can easily enough be broadened to include both cases (a) and (b). To some extent this was already done in the " General Theory " itself (chapters 20 and 21). With the outbreak of war, Keynes (in " How to Pay for the War ") applied his tools to the inflationary case. In America, too, Keynesians, using the concept of the inflationary gap, readily broadened their analyses to include the case of a society in which aggregate demand was pressing against the limits of productive capacity.

The previous part distinguished the situation in which an economy is already working at the limits of its productive capacity from the situation where it is not. There is a second, quite independent distinction to be made. This one relates to the nature of the capacity limitations in an economy. It appears to be presently the case in Italy that capacity to produce final goods and services is limited, generally speaking, by shortages of plant capacity (including agricultural plant) and not by limitations of labor supply (3). This is in sharp contrast to the situation in, for example, the United States, where, during the past two years (as in most earlier periods), the limit of output appears to have been set in most industries by shortages of labor. Given the nature of its productive techniques (as embodied in present capital goods), Italy would need substantially more capital equipment and productive land to employ all of its present labor supply. Given the productive techniques of the United States, there is at least enough capital equipment and land to employ all of the labor — possibly to absorb more labor than is currently available. It is a matter of what some have called " factor endowments ": Italy's factor endowment of labor is in

(3) This is a question of fact about which most economists in Italy express a definite opinion, although I have found it exceedingly difficult to discover the empirical basis upon which their opinion rests. For a more skeptical view, see my Lecture " Some Problems in the Absorption of Unemployed Resources " delivered at the Istituto di Economia e Finanza della Facoltà Giuridica di Roma, February 9, 1957, especially pages 8 seq.

excess of its endowment of capital; therefore some labor is surplus. America's factor endowment of capital perhaps exceeds, surely equals, its endowment of labor.

Now it is further true that Keynes and Keynesians have almost invariably assumed factor endowments of the American sort. Thus *unemployment of labor* comes to be identified with operation of the economy below its practical capacity — that is, unemployment of labor automatically signifies a waste of productive capacity as a result of inadequate aggregate demand. It is for this reason that the standard Keynesian remedy for unemployment is to increase aggregate demand — to stimulate either investment or consumption or government expenditure in a way that will not reduce another kind of spending; or, if possible, to increase all three simultaneously. But this kind of remedy is inapplicable if the economy is already operating at capacity limits, set by a shortage of capital goods or land.

Once again, Keynes' substantive assumption may be inapplicable to Italy; but not necessarily other aspects of his analysis, which one might easily broaden by including *both* types of limitations on output. We then have three cases: the situation where aggregate demand falls short of productive capacity (the original Keynesian case); the situation where aggregate demand threatens to exceed productive capacity, limited by shortage of labor (the usual Anglo-American inflationary gap analysis); and, finally, aggregate demand that threatens to exceed a productive capacity which rests upon shortages of capital and land.

The factor endowments referred to above are, of course, not fixed and immutable; rather, they are constantly changing. Keynes' own analysis was short run — it assumed factor endowments as given. But later Keynesians, for example, Harrod and Domar, have incorporated growth of factor endowments quite comfortably into the Keynesian framework. There is no reason why we cannot extend this also to include cases in which growth of factor supplies starts from a point at which the labor factor is redundant.

In such an analysis, we usually consider the growth of labor supply as autonomously determined. The labor force changes through population growth, through changes in the traditional or institutional limitations upon membership in the labor force, and through changes in the institutional limits on the extent of the working day or week. All such matters are only indirectly and

remotely affected by current economic forces. The endowment of capital changes through the excess of the construction of new capital equipment (including land) over losses through wearing out, obsolescence, or accident. That is, it changes through net investment, which is one of the variables of our analysis.

Starting from factor endowments like those of Italy, the objective of policy obviously must be to get a larger growth of capital than of labor supply, both to increase production and well-being, and to eliminate the personal and social tragedy of unemployed labor. A high rate of growth of capital means that a high rate of investment is required. But since the economy is already working at capacity limits — limits imposed by the very shortage of capital which policy is trying to correct — investment can increase only at the expense of consumption. Here, then, is where we get the proposition at first sight so strikingly non-Keynesian: reduction of unemployment requires more, not less, saving. Yet if we broaden the Keynesian analysis in the ways suggested, this can still be thought of as a Keynesian conclusion.

Actually, the conflict between this and the usual Keynesian doctrine is more apparent than real. The usual Keynesian remedy for unemployment, which calls for more spending (either more of *both* C and I, or more I without any reduction of C) refers to a single point or period of time. The Italian remedy for unemployment, which calls for I *in place of* C, refers to two different periods of time. A mere change in the composition of aggregate demand — more I and less C — does not affect today's aggregate demand or employment; it is designed merely to permit more employment at a later period. It is still true that, up to the limits set by productive capacity, it is the total size and not the composition of aggregate demand that matters for today's employment. But if aggregate demand is today adequate for capacity operation, and if capacity is limited by capital shortages, then a shift in the composition of today's aggregate demand (toward investment) may permit a higher level of employment *tomorrow* than if this shift in composition had not occurred.

Indeed, if we can assume that the present ratio between capital and employment (or some other predetermined ratio) will be maintained, and if we can predict the growth of the labor force, we can even compute how much restriction of consumption is necessary in order to eliminate unemployment, or any predetermined portion

of it, within any given time interval. Or, if we assume that some given restriction on consumption (or on the growth of consumption) is the maximum that can be tolerated, we can compute how long it will take to eliminate unemployment, or any predetermined part of it. The "Vanoni Plan" is, among other things, essentially a computation of this sort. Once an American Keynesian grasps its assumptions, he finds the analysis fairly familiar.

The concern of Anglo-American Keynesians with unemployment arising from inadequate aggregate demand led them, at first, to pay little attention to the problem of the composition of aggregate demand, as between consumption and investment. They were more concerned with the total level of demand, not with its apportionment. Later, they began to worry about the possibility that a full-employment level of demand which was too heavily weighted in the direction of investment might create problems for tomorrow. Actually, this concern began with Keynes' own rather incidental discussion, in which he expressed the fear that an act of investment today would make it harder to find an investment outlet tomorrow. Domar refined this analysis by showing that today's investment created additional productive capacity, which, if it were to be utilized tomorrow, would require not merely the repetition of today's level of aggregate demand, but rather a growth of demand. Assuming a given average propensity to consume, and a given average ratio of capital to output, the maintenance of full capacity operation over time would require the growth of investment (and hence of income) at a constant percentage rate. It was Domar who first refined in the Keynesian literature the concept of a productive capacity which depended on previous investment.

The Italian economists who espouse a program of heavy investment to solve Italy's employment problem are well aware that investment creates added productive capacity — this is exactly why they want it. Unlike the Anglo-American Keynesians, they do not worry about the possibility that aggregate demand will not grow fast enough to utilize the new capacity; perhaps the Anglo-Americans no longer worry so much about this either. Certainly we now know a number of ways in which public intervention can be used whenever aggregate demand is insufficient fully to utilize our productive capacity.

The concentration of attention by Italian economists on problems of growth over time of productive capacity, and the shift

of attention to this area by the Anglo-American Keynesians, has begun to expose some difficult analytical problems, at first glossed over. The Domar models assumed that the ratio of capital stock to potential output was constant; thus tomorrow's productive capacity was determined entirely by today's investment. The assumption of the Italian models is similar, but subtly different. It is that the ratio of capital stock to *employment* is constant; this means that tomorrow's potential *employment* is determined by today's investment. The Domar models pay no explicit attention to the size of the labor force. But if the ratio of capital stock (K) to output (Y) is constant, regardless of changes in manhour employment (L), then the ratio of K to L cannot be constant. Here we enter a very treacherous terrain. On our usual static assumptions concerning the " laws of production ", we can increase K and L in the same proportion and get an equal proportionate increase in Y. In this case, K/Y and K/L are both constant. If K increases in greater proportion than L, Y will increase in lesser proportion than K, causing a rise in the ratio of Y to L. The static assumptions include that of " given " techniques of production, the meaning of which has always been extremely slippery. But in an analysis of the historical process of the growth of capital, employment, and output over time, static assumptions are clearly inadmissable.

One approach to this difficulty has been to distinguish between two types of investment. Following usage introduced by the American Keynesian, Professor Alvin Hansen, we can call an investment a " widening " investment if it merely supplies more workers with capital equipment of a type no different from that already in use. More specifically, an investment is widening if it does not alter the existing (average) ratio of capital input to labor input — that is, does not raise capital per man. An investment is " deepening ", on the other hand, if or to the extent that it equips workers with more or more elaborate or more expensive equipment than the previous average.

Only if all investment, or some constant portion of it, were of the widening variety would it be possible to predict how much investment would be necessary in order to absorb a given number of unemployed workers. If an increasing fraction of Italy's investment were of the deepening sort, Italian productive capacity measured in terms of output would still grow (because each worker could now produce more than before); but employment would not neces-

sarily grow, nor unemployment necessarily decline. The reverse might even occur. In fact, just this problem is now bothering many Italian economists (4). The problems involved here are not only crucially important from the standpoint of economic policy; they are very imperfectly understood by economists. The invention of the categories "widening" and "deepening" does not conceal the fact that we know little or nothing about the reality behind these terms. Much more work is needed. This includes abstract model building, of which much is being done both by Anglo-American and by Italian economists. But it also includes work on the empirical level, of which perhaps less is being done.

III.

With what I consider only a slight extension of the Keynesian substantive assumptions, I have thus brought a familiar analysis of Italian economic problems under the "Keynesian" label. One may not agree that I should call the latter analysis Keynesian. But it surely is Keynesian in the very important methodological sense that it deals only with broad aggregates of total consumption, total investment, national income and output. Those who prefer the flow-of-funds approach are no less aggregative, when they deal in terms of saving, money creation, and investment. While the "growth" analysis departs from Keynes' short run limitations, it is equally aggregative, only adding such further aggregates as the accumulated capital stock, introducing functional relationships between this new variable and productive capacity or employment (5).

It is my thesis that the high degree of aggregation involved in the Keynesian approach may be fully appropriate in dealing with what I have called above the "original" Keynesian case, that of aggregate demand less than productive capacity; that it is still useful, with certain qualifications, for the case of aggregate demand pressing against a productive capacity limited by labor shortages; but that serious, perhaps fatal qualifications may be necessary when

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(4) See V. Lutz, "Some Characteristics of Italian Economic Development, 1950-1955", in this *Review* (1956, No. 39).

(5) The reader may contend that I have loosely identified "Keynesian" analysis with macroeconomics in general, which includes, among other things, the long development of monetary theory. It is certainly correct that I am inclined to minimize rather than to overstress the break between Keynes and his predecessors.

we deal in aggregative terms with the situation in which output is limited by capital shortages. To understand my thesis, it is necessary to look more sharply at the concept of " productive capacity " which I have used quite freely up to this point.

When we say that aggregate demand falls short of productive capacity, we mean that output of almost all goods can be freely and quickly expanded — if only buyers stand ready to purchase — under conditions of approximately constant cost. We are dealing here not with the Marshallian " very short period ", in which supplies are temporarily fixed by previous charges into the pipeline, but rather with the " short period " proper, in which inputs of variable factors can be freely increased, with resulting increases of output. If we assume perfect competition in all industries, as did Keynes, we are forced also to assume rising marginal cost curves in all industries as variable inputs increase (6). Thus all selling prices, and the average price level, must rise, at least slightly, relative to money wages and import prices as total demand increases. This was Keynes' conclusion. But he did not assume that the increase in marginal cost or prices would be substantial. Were we to assume imperfect competition, we might even have an output expansion with no rise in the price level.

This, then, is what we mean by an economy operating where aggregate demand falls short of capacity: output of all goods can be increased under conditions of constant or only slightly diminishing marginal returns (constant or only slightly increasing marginal cost). We need then to investigate what it means to say that aggregate demand is pressing against productive capacity, leading to the situation or the danger of inflation.

What does the term "capacity" mean for any single commodity? Actually, its meaning is usually far from clear. Presumably, repeated increases in variable inputs encounter more and more sharply rising marginal costs (more and more sharply diminishing marginal returns). At some point, the marginal cost curve becomes very steep, even vertical. But unless there is a discontinuity (and sometimes there is), it is hard to speak of any one point as a point of " capacity " operations (7).

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(6) Otherwise, there could be no interfirm equilibrium in any industry.

(7) Input-output analysis usually assumes, I believe, in effect, that marginal cost curves are horizontal, up to some limit, where they rise vertically.

Now consider a range of commodities. Suppose that the variable inputs used in producing all commodities are the same. If we reach a level of demand at which the current flow of variable inputs is exhausted, while marginal cost curves for all goods are still quite flat, then we can quite meaningfully say that total output is limited by a shortage of the variable factor.

We can relax our assumptions somewhat, and still have a fairly unambiguous situation. Suppose, first, that an increase in demand for all products causes the output of some few of them to approach the point of rather sharply rising marginal costs. The prices of these products must, and will, rise somewhat more than the prices of other products (on competitive assumptions all must rise somewhat relative to wages). This rise in relative prices should cause demand to be diverted to other products whose marginal cost curves are still relatively flat. But if the particular goods in the position of short supply have reasonably good substitutes, the rise in the relative prices of these goods should not have to be very sharp (even though their marginal cost curves rise sharply), and the average price level need not be greatly affected. If only a few such "bottlenecks" are encountered prior to the point of full employment of the variable factor, and if good substitutes are available for the bottleneck goods, we can still think of total output as being limited by the supply of the variable factor.

Or, it may be that the inputs are not entirely identical as among the various goods. Or perhaps there is some immobility of the input factors, so that even if variable inputs are unemployed in the production of one product, an appreciable differential of input prices is necessary to cause them to move to the production of another. Suppose, further, that an increase in aggregate demand exhausts the specially-attached variable input factors for some products while there are still idle units of variable input awaiting employment in other industries or localities. In either case, some selective increase in the cost of variable inputs — and therefore further selective increase in output prices — will be necessary to reach a condition of full employment of variable inputs.

However, if we assume an economy with relatively abundant capital, and one in which the composition of aggregate demand is fairly stable, relatively few bottlenecks should arise short of full employment. And so long as there are reasonably good substitutes for the bottleneck products, there need be neither sharp changes

in the structure of prices nor sharp rises in their general level. So long as labor is, at least at the margin, reasonably mobile among industries and products, the concept of full employment of the variable factor, labor, remains reasonably precise, as do the concepts of an aggregate demand or output that fall short of, lie close to, or press against the limits of productive capacity.

These were Keynes' assumptions. If he did not labor them as I have, at least he made them quite precise and definite. They also describe, I submit, in a reasonably satisfactory way, the economic situation, in boom and depression, of England or America. And, if these assumptions are reasonably satisfied, our aggregative procedures are probably justified. If the structure of relative prices of the various goods and services that make up the aggregates can be taken to be approximately stable, then aggregation has a fairly clear meaning. The terms at which each commodity or service can be translated, in the market, into any other commodity or service are then fairly constant, and, at least for some purposes, we can speak as though an aggregate like " total real consumption " were a single good instead of a vast conglomeration of diverse goods and services. Put otherwise, if the relative prices of various goods and services can be taken as given, or nearly so, then an analysis which, like the Keynesian one, omits relative prices may still be valid (8).

In this case, we also have a fairly clear meaning for the concept of " inflation ". Up to the point of full employment, prices rise but little (relative to wages). As demand increases to and then beyond the point of full employment, demand for all products suddenly exceeds amount supplied, leading to an indefinite and self supporting inflationary spiral, much like that visualized by Wicksell. The inflationary rise in price is, for each commodity, a matter of demand rather than costs; for, if extra labor could be found, production of each commodity could still be increased under conditions of only moderately rising marginal cost. Inflation only becomes hard to define when certain prices are rising, not others, and when the rise in price is associated with the covering of higher marginal costs *of additional output.*

But what of the Italian case, which we agreed did not fit the Keynesian assumption? The lack of fit could arise from any of

(8) See G. Ackley and D. B. Suits, " Relative Price Changes and Aggregate Consumer Demand ", *American Economic Review*, XL (Dec. 1950), 785-804.

several sources. It might be, first, that as aggregate demand and output increased, but long before supplies of the variable factor were exhausted, very steeply rising or vertical marginal cost curves might be encountered, *at about the same time in all or nearly all fields of output*. Particularly if there are cost discontinuities which give clear meaning to the capacity concept for each good, the concept of an aggregate productive capacity limited by capital shortage would then have unambiguous meaning. In this case, an aggregative analysis might still be appropriate, the meaning of inflation clear. But this case seems rather specialized and somewhat implausible.

It would seem more likely that bottlenecks in some or a number of products might be reached while marginal cost curves were still relatively flat elsewhere. If the bottlenecks were in products for which good substitutes existed, moderate shifts in relative prices might redirect demand so that the point of plant capacity could still be reached simultaneously for every product. However, the meaning would be completely clear only if we adopt the assumptions of input-output analysis, of constant proportions between variable inputs and outputs, up to some limit of plant capacity, at which point output can no longer be expanded at all. Then, as capacity was reached in particular lines, these prices would rise in response to further increases in demand, diverting such demand to other products, until all products reached the limits of plant capacity together. If, instead, we have marginal cost curves that rise continuously, even though they are concave upward, rising more and more rapidly as output expands, the concept of total output limited by plant capacity loses much of its clarity. To be sure, we might give it meaning in the symmetrical case, in which cost curves with the same degree of inclination in all products are encountered at any one time. We could then arbitrarily declare that when further increases in aggregate demand encountered a supply elasticity in each product of, say, two, or one, or one-half (i.e., a one percent rise in output was accompanied by a one-half, a one, or a two percent rise in prices), this would be defined as the point of inflation or the limit of capacity. In the perfectly symmetrical case, the relative *structure* of prices would be unaltered — all prices would rise together. The less the symmetry, the more vague the concept of capacity; and clearly, the less stable the structure of prices the greater the difficulty of giving meaning to the " real " magnitude of aggregates.

One may say that the above difficulties are somewhat fanciful. Perhaps the assumptions of input-output analysis are more realistic, and capacity in most lines has clear meaning. And perhaps, over time, if demand pressures have remained consistently strong, the price structure has been so adjusted and investment has been so directed that the requirements of our model are approximately realized. This is at least possible.

However, my own casual observation as well as the testimony of many Italian economists and other trained observers suggests a different model. It is one in which true bottlenecks do exist in certain strategic goods — for example, steel, cement, electric power (9). These are also goods for which very poor substitutes exist, so that no practicable rise in their relative prices, and in the relative prices of final goods that use these as inputs, would have much effect in shifting intermediate demand to other materials — e.g., stone or sulfur — or final demand to other industries — e.g., textiles, housefurnishings, and personal services — in which supply is still freely expansible. We may be able to conceive of changes in relative prices which would accomplish the adjustment of demand to plant capacity (10). But to secure these without an elaborate system of subsidies would require an impossible inflation of the general price level and an intolerable redistribution of personal incomes. Barring such changes, total output is not limited by capital shortage, but by shortages in plant and equipment in a few specific lines.

Further, we need to add for the sake of completeness that the assumptions of the usual Keynesian analysis would be equally violated if variable input factors are either highly specialized or severely immobile (through ignorance, institutional barriers, or high transfer costs). In this case, too, a shortage of labor with particular skills could exist side by side with considerable unemployment in other skills (or of unskilled workers generally) or in other localities. Increases in aggregate demand would then encounter output limits that were based neither upon general labor shortage nor upon a shortage of plant and equipment. Again, these limits might con-

(9) The examples are illustrative only. These commodities may or may not be bottlenecks at present (a question of fact that I find very difficult to pin down).

(10) The usual input-output analysis involves, of course, the assumption that no change in relative prices of intermediate goods would alter their use in production.

ceptually, but not in practice, be resolvable through massive readjustments of relative prices (and incomes) (11).

Suppose that we admit that the Italian case may contain elements either of the true bottleneck or of severe immobility, perhaps of both. I have suggested that analysis of these situations by aggregative methods becomes dangerously misleading. The reason, of course, is that aggregative analysis — if it is to amount to anything more than an *ex post accounting* — necessarily involves functional relationships among the aggregative variables employed. In many if not all cases, stability of these functional relationships depends upon some stability of the composition of the aggregates.

Take, for example, the famous consumption function. The stability of this aggregate relationship rests upon certain plausible assumption about individual behavior toward particular goods and services, together with an aggregation across all goods and across all individuals. The assumption about the behavior of the individual is that he has a fairly stable positive income elasticity of demand for each good. This is reasonable enough. If his elasticity were the same for each good, and regardless of his income, and if all individuals were alike, then neither the availability of goods nor the personal distribution of an aggregate income would make any difference. But all individuals are not alike, nor is any individual's income elasticity of demand the same for all goods, and the same regardless of income. Thus stability of the aggregate relationship requires that both the goods composition of consumption and the distribution of income by broad categories either be (i) stable, or (ii) stable functions of the size of aggregate income or consumption. If there are serious bottlenecks (and lack of substitutability) or severe immobilities, neither (i) nor (ii) in the previous sentence can be assumed.

Or, to take another example, almost all aggregative analysis assumes some stable short run relationship between aggregate demand for goods and the volume of employment. We know that

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(11) This reasoning suggests that there is a further implicit assumption of the "Keynesian" analysis. A reasonably mature economy, not subject to rapid transformation or development, should encounter few serious bottlenecks of plant capacity or serious partial shortages of labor, or should break them quickly. A developing economy, on the other hand, may be plagued with constant bottlenecks, and specialized labor shortages, their location perhaps shifting from stage to stage. Thus we may argue that Keynes implicitly was assuming the former kind of economy.

this relationship varies widely as among individual products (12). Therefore, an unstable composition of aggregate output might find a rise in the volume of total (deflated) spending accompanied by a fall in employment, or *vice versa*.

Another, perhaps still more relevant example relates to the assumed technological relationships between investment and productive capacity or employment which underlie the growth models. But if there are serious bottlenecks, investment " in general " neither increases productive capacity (for the goods that will be demanded), nor the ability to absorb additional workers. It is only investment in the bottleneck industries that will do these. If the problem is immobilities of labor, only investment in particular places or industries will increase productive capacity or permit greater employment. Thus, unless the composition of investment is either constant or is a stable function of its aggregate amount, the assumed relationship between investment and productive capacity or employment fails of stability.

It is not only in the analysis of economic problems but also in the design of economic policy that an aggregative analysis may fail where there are serious bottlenecks or immobilities. Keynesian aggregative analysis suggests and supports aggregative policies — generally of a fiscal or monetary nature. These policies are not directed toward individual products or industries or localities. They are " indirect " rather than " direct " controls. To most Anglo-American economists this is one of their great advantages. This preference reflects a recognition of the fact that the successful design of policies of the more direct variety requires a vastly greater amount of detailed information, and that such policies are infinitely more difficult to administer or enforce; and also a feeling that the more detailed interventions involve the public administration in more specific and personalized decision making — in favour of this person or firm or group over another — with its possibilities for petty tyranny, favoritism, and corruption.

A general increase or decrease in the level of personal taxation, for example, can be expected to depress or to stimulate the demand for consumers goods in general. No administrator need decide

(12) It varies less widely when, as we must, we consider also the labor requirements for the intermediate goods used in producing each final product; but there is still wide variation.

whose consumption will be reduced, nor of what products (13). To be sure, because there are different income elasticities of demand, the depression or stimulus will have an unequal impact upon different goods. But if all goods are produced under conditions of approximately constant marginal cost, and labor is highly mobile, the structure of relative prices need not be greatly affected; the composition of output will adapt itself to the composition of demand, and only modest shifts in relative incomes will secure the necessary rearrangements of consumption and production. Similarly, a tightening or loosening of monetary controls will affect interest rates and the availability of loans and thus discourage or stimulate investment, the commodity composition of which can be easily adapted to the structure of demand.

Consider, however, the working of aggregative policies when bottlenecks or immobilities are severe. We referred at the end of section II to the diagnosis that said that Italy must restrict consumption (or the increase in consumption), in order to divert resources to investment so as to permit a closer approach to full employment in the future. Suppose such restriction of consumption is undertaken by general tax increases, or perhaps by a generally restrictive wage policy. Such policies may depress the consumption of automobilies (or the increase in their consumption), and thereby free steel to build more steel plants, cement factories, and power stations. This is the shift from consumption to investment that will permit greater output and employment at a later date. But these measures will also restrict the consumption of textiles and personal services. The resources released in these latter industries will not help break the steel or cement shortages, nor will they remedy a possible shortage of metallurgists, or of unskilled labor in some particular industrial suburb of Turin. Many of the resources will be released into unemployment, rather than diverted to investment. Likewise, a lowering of interest rates, or other generalized inducement, may stimulate investment in all lines, not merely in the bottleneck areas. Thus steel may be diverted from the construction of steel plants, prolonging the period of shortage. What is needed is not more investment in general nor less consumption in general, but certain specific transfers of resources.

(13) Actually, we deceive ourselves if we think that it is this easy. What, specifically, is a " general " increase or decrease in the level of taxation?

I am not prepared to argue how important these problems may be either for the analysis of Italian economic problems or for the design of policy. But I am convinced that if there is a limitation on the applicability of what I have broadly called Keynesian analysis to Italian problems, it is here that the limitation arises.

Assuming that the limitation is serious, what does it suggest? It means, does it not, that both analysis and the design of economic policy may have to be more detailed and complicated than would be the case were these problems not serious? If intervention is necessary in the Italian economy — and who does not agree that some intervention is required? — it may have to take a form and a degree that Keynesians (and the advocates of central bank policy) are not accustomed to contemplate. This view appears to be shared by many Italian economists who are closely concerned with planning and execution of economic policy. But I am not clear that the experiences and conclusions of these economists have yet been digested into Italian economic analysis. Put otherwise, since the Keynesian analysis is rejected, there does not appear to be any other considerable body of economic theory at the disposal of Italian policy makers relevant to the problems of unemployment and inflation. This is in striking contrast to the availability of the Keynesian and post-Keynesian theory to the economists concerned with fiscal policy in England and America.

Certainly, if we reject the Keynesian analysis on the grounds that I have suggested, it does not mean that we can go back to some earlier, simpler model. Both our theory and our policies must be macroeconomic; despite the necessity to consider particular industries, no partial equilibrium approach will suffice. Yet a traditional general equilibrium analysis seems to me equally inappropriate. Like the Keynesian, I should expect the new theoretical apparatus to retain the tie to the categories of the social accounts; like the Paretian, it would also be concerned, at crucial points, with relative prices (14).

In the development of this analytical model, there are two significant characteristics of the Keynesian analysis that I should think it necessary to incorporate. One is its empirical nature.

(14) Perhaps it would be better to say that it must consider sectoral elasticities of supply and demand. For relative price changes may either be too ineffective an instrument, or have socially unacceptable consequences for income distribution.

Keynesian analysis embodies hypotheses about economic structure and human behavior that have specific empirical content and which are framed in terms which permit their empirical testing. Perhaps the hypotheses are incorrect, or insufficiently detailed. But superior empirical hypotheses can be found. Second, Keynesian analysis concentrates upon a reasonably limited number of variables, and on variables that are *strategic*. By this, I mean that they are variables that economic policy either has in the past attempted or might in the future attempt to influence. Perhaps the variables have been too few. But we still need an analysis which is oriented toward economic policy — one intended to meet the needs of those who are charged with responsibility for advancing the objectives of society by the design either of appropriate action or, equally important, inaction. If the Keynesian analysis does not suggest the correct policies, it needs to be replaced — not by one which is not policy-oriented, but by one that suggests better policies.

Ann Arbor

GARDNER ACKLEY

Relative Prices and Development Programmes(*)

SUMMARY. I. *Variations in Productivity, Prices and Incomes in the Long Run*. 1. Relative prices and productivity. 2. Alternative economic consequences of the increase in physical productivity. 3. Wages and productivity. II. *Consequences of Variations in Relative Prices in the Short Run*. 1. The elements constituting the total unit cost of the industrial firm. 2. Variations in relative prices and in income distribution. 3. The " waste " of the increase in productivity. (a) Increase of the relative prices of agricultural products. (b) Increase of commercial margins. (c) Increase of the relative prices of raw materials. III. *Application of the Analysis to the Italian Economy*. 1. Real wages and productivity in industry; the " waste " of the increase in productivity. 2. The relative prices of agricultural products; Ricardo's thesis and the Italian economic situation. 3. Commercial margins. 4. The relative prices of raw materials; the case of the textile industry. IV. *Conclusions*.

The aggregative approach, as used by Keynes and his followers, has undoubtedly made possible considerable progress in bringing economic theory more into line with the requirements of economic policy. It is coming to be more and more widely recognised, however, that the approach suffers from serious limitations (1). The Keynesian aggregates are expressed in terms of a general average of prices (or wages). What appears, therefore, is the *level*, not the *system* of prices; not relative prices and still less variations in these prices.

In the development programmes now being worked out in an increasing number of countries, the Keynesian aggregates are the fundamental decision variables. These are measured by using the price level for a certain base year. This procedure, however, overlooks the question of the consequences for economic development of variations in that level and, even more important, in relative

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(*) Translation of a paper read on June 8, 1957 at a seminar of the Institute of Economics and Finance of the Faculty of Law of the University of Rome. The original Italian paper was published in the *Giornale degli economisti*, May-June, 1957, pp. 340-369.

(1) *Cf.* J. A. SCHUMPETER, " Business Cycles " (McGraw-Hill, New York, 1949), p. 144; and, more recently, for a discussion of the problems relating to economic policy, G. U. PAPI, " Statistica e macroeconomia ", in the volume *Studi keynesiani*, Istituto di economia e finanza della Facoltà giuridica di Roma (Giuffrè, Milano, 1953), pp. 353-384.

prices. These issues are disposed of with a vague reference to " appropriate " policies (such as fiscal, international trade, wage and, indeed, price policies) without specifying them. *It follows that State action bearing directly or indirectly on prices, and especially on relative prices, is left in the air without any orientation in the light of rational principles and is decided on, case by case, by rule of thumb methods — not infrequently with unfavourable effects on economic development itself.*

The present article deals with the problem of relative prices from the perspective of a policy designed to foster the growth of national income. We shall examine variations in income distribution, not in relation to their influence on the immediate welfare of various social groups, but only as they affect the growth in total income. We shall refer to an expanding economy in which, however, there is a substantial amount of unemployment, as is the case with the Italian economy at the present time. An analysis of this type of economy brings out the serious limitations of the Keynesian aggregates. The use of a single average for prices (or wages) will be shown to be particularly unsatisfactory. It is not a question of dropping the aggregative method or the use of general indices in order to concentrate on individual firms or consumers. It is a question of making this method suitable to the study of the problems of a developing economy; to reduce the degree of aggregation by selecting sufficiently homogeneous sectors of the economy and then to study the terms of trade (average relative prices) between these sectors. The analysis should be based on individual firms whenever possible or desirable.

In the first section we shall consider the relations between prices, incomes, and productivity with reference to the long run on the basis of certain simplifying assumptions. These assumptions will be dropped in the second section, where we shall consider the variations in relative prices mainly with respect to the short run. The analytical problem, unifying the entire discussion, concerns the allocation of an increase in productivity in a developing economy. We purport to show how variations in relative prices affect the increase in productivity, and to show, in particular, when this increase, in its turn, is a factor stimulating development — or helping to foster subsequent development — and when it is, economically speaking, sterile, i.e. when it " runs to waste ". This is our basic problem.

I.

Variations in Productivity, Prices and Incomes in the Long Run

1. *Relative prices and productivity.* One of the main reasons for variations of relative prices is the fact that productivity (by which, following the general usage, I mean the physical productivity of labour) (2) does not increase at the same rate in different productive activities: in some of these it increases at a relatively high rate, in others, at a relatively low rate, in still others it does not increase at all or even decreases. This necessarily brings about variations in the price and income system.

Before considering such variations and their consequences on development, we must examine briefly the factors determining the increase in productivity. Generally speaking, this increase depends on innovations and on improvements in productive methods. The new methods may not imply additional investments in fixed capital. They may simply consist of more efficient systems of organization or of more rational combinations of the factors of production. Opportunities of this kind exist especially in agriculture and above all in the agriculture of backward economies; but in industry itself they are more common than is usually believed. In industry, however, the new methods imply, as a rule, additional fixed investments, which are embodied in machines, new or improved.

Fundamentally, new machines may be introduced for two reasons. 1) An increase in wage rates may make it advantageous to introduce machines already on the market. In this case the entrepreneur is trying to reduce to the previous level the cost of labour per unit of output (the ratio between hourly wage rates and hourly productivity) which had increased owing to the increase in the wage rates. 2) On the other hand, even if wage rates remain unchanged, it can be advantageous to introduce new machines which

(2) Alternatively, productivity may be expressed either in terms of invested capital (measured in money units with constant purchasing power or in physical units, such as horse power or kilowatts), or else in terms of labour *and* of capital (*cf.* J. W. KENDRICK, "Productivity Trends: Capital and Labor", *Review of Economics and Statistics*, May, 1956, pp. 248-257). The denifition used here — physical productivity in terms of man-hours — is rigorously determined only if it refers to a firm producing a single product; it becomes problematic if it refers to an "industry"; it becomes extremely problematic if it refers to a complex of industries. See below section II, par. 1 and section III, par. 1.

are more efficient than those already employed. As a matter of fact, the machine producing firms continuously try to improve their models and to create new ones. In the first case we can speak of an " induced mechanization " — induced by the increase of wages; in the second, of an " autonomous mechanization " — fostered by technical progress and advantageous at prevailing wage rates.

There is a special case of " induced mechanization ". During a period of inflation or of inflationary pressure, firms may find it expedient, in view of the progressive diminution of the real burden of debts, to borrow at long term, in order to buy machines, more than they would in periods of stable prices. In addition, firms tend to invest their growing money profits in durable goods and particularly in machines (3). In such a case, mechanization is induced by the inflationary process.

If, in a firm, new machines are *added* to those already employed, the fixed cost increases. If new machines are introduced *in substitution* for those which are gradually wearing out and which should be replaced anyhow, the fixed cost does not necessarily increase, it may even diminish. This second case is quite common. The opportunities for such substitutions are created by the very firms producing machines; their models are being perfected constantly.

Empirical enquiries have shown that there is a high correlation in most industries between increases in production and increases in productivity. In other words, in those industries where production increases at a relatively high rate productivity also tends to increase at a rate decidedly higher than the average (4). This is understandable; in order to expand production, firms enlarge their plants and buy new machines; therefore, they have greater opportunities to introduce machines which are better and more efficient than those already functioning.

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(3) *Cfr.* C. Bresciani-Turroni, " Le vicende del marco tedesco ", *Annali di economia*, 1931, No. 1-2, pp. 235-255 and especially pp. 496-503. There is an English edition of this work, enlarged and entirely revised, published under the title: " The Economics of Inflation " (Allen and Unwin, London, 1937).

(4) *Cf.* W. S. Woytinsky and Associates, " Employment and Wages in the United States " (The 20th Century Fund, New York, 1953), pp. 73-75; A. Rinaldi e G. Sacco, " Alcuni indici di produttività nell'economia italiana ", *Produttività*, No. 4, 1954, pp. 382-387; A. Madison, " Output, Employment and Productivity in British Manufacturing in the Last Half Century ", *Bulletin of the Oxford University Institute of Statistics*, No. 4, 1955, p. 383.

2. *Alternative economic consequences of the increase in physical productivity.* In a first approximation and with reference to the long run, the increase in productivity may lead: 1) to lower prices, at constant money incomes; 2) to higher money incomes, at constant prices (for the sake of simplicity, we will consider only profits and wages and suppose that both of them increase in proportion to productivity); 3) partly to lower prices, partly to higher money incomes.

In the first case, although money incomes remain constant, real incomes increase with the diminution of prices of consumers' goods for which those incomes are expended. In the second case, real incomes increase *pari passu* with money incomes, prices being constant. Finally, in the third case, real incomes increase owing partly to the diminution of prices and partly to the increase in money incomes.

Which of these mechanisms is the most convenient from the social point of view? Which one is most suitable to promote economic development?

Let us suppose for the moment that it is possible to choose freely among these mechanisms.

The first is described by the classical economists; it assumes that competition operates in all or in most markets. *In favour* of this mechanism there are several considerations. The increase in productivity brings about directly and indirectly a diminution of costs. When certain technical coefficients are reduced owing to innovations, costs decrease even if the prices of the factors of production remain constant. But costs may also decrease in non-innovating industries, owing to a diminution in the prices of the factors, the technical coefficients remaining unchanged. In the first case the direct cause of the diminution of costs is an improvement in productive methods. In the second, the diminution of costs is determined by the diminution in the prices of the factors. Now, if the first mechanism operates (decreasing prices, constant incomes) and if the decreasing prices are those of instrumental goods, employed by broad categories of firms, *the reduction of costs determined by technical progress is not confined to those sectors in which it takes place, but spreads into many other sectors. All the firms which do not change their methods but employ as factors of production those goods the prices of which decrease benefit indirectly*

from that reduction (5). The process of diffusion is particularly important for medium-sized and small firms which, through the induced reductions of costs, obtain higher total profits and are thus able to self-finance their own development (6). It is also important, generally speaking, for firms engaged in productive activities where the reduction of costs determined by technological innovations is relatively infrequent. (Agriculture is among these activities).

Against the first mechanism there is the question of the indebtedness of the firms. *General* increases of productivity bring about a *general* fall in prices; such a fall increases the real burden of debts of the firms and in this way it discourages the growth of production.

In favour of the second mechanism (constant prices, increasing incomes) one could point out the fact that the problems just mentioned do not arise.

Against the second mechanism we must point out, in the first place, the absence of the process of diffusion of cost reductions. In the second place, there is the very important fact that productivity does not increase at the same rate in different firms nor (even less) in different industries. The increase of incomes (wages and profits) in proportion to productivity gives rise in the long run to untenable situations, since productivity, in certain industries, increases at a very high rate. In particular, a given increase in wages taking place in the most progressive industries tends to push upward wages in all industries, even in those in which productivity grows at a rate too low to compensate for that increase. In these industries costs go up and productive development slows down.

It has therefore been maintained that the most advantageous mechanism is the third one (7). Money incomes increase in proportion to the *average* increase of productivity while the price *level* remains approximately stable; *individual* prices fall in those markets where productivity increases more than the average and rise in those markets where productivity increases less than the average.

(5) *Cf.* the present writer's monograph: "Oligopolio e progresso tecnico" (Giuffrè, Milano, 1957), part II, ch. II, par. 3-5.

(6) In a competitive market the higher profits can last only for a limited period. But if the technological reductions of costs are frequent, the whole process repeats itself, though at intervals.

(7) For example, see J. C. Davis and T. K. Hitch, "Wages and Productivity", *Review of Economics and Statistics*, November 1949, pp. 292-298.

This mechanism would avoid the difficulties inherent in the second one and would seem to combine, to a certain extent, the advantages of the first and second mechanism. If, however, in the different industries the dispersion of the rates of increase in productivity is very marked, some of the difficulties of the second mechanism reappear. Indeed it is probable that in those industries where the increase in productivity is considerably higher than the average, incomes (profits and wages) tend to increase at a rate higher than the average (though less rapid than the specific increase in productivity), owing to attritions, which already operate in competition and which, if there are monopolies or oligopolies, become true and proper obstacles. These attritions or obstacles delay or reduce the diminution of prices corresponding to the increase (higher than the average) of productivity. The inequality in the distribution of incomes, even of those of the same kind, tends to worsen. On the other hand, non-innovating firms with stationary productivity do not receive, or receive to a reduced extent, the stimulus to expansion afforded by the diminution of the prices of goods that they employ as factors of production.

Up to this point in our discussion we have assumed the possibility of choosing among the three mechanisms. In practice, from the standpoint of economic policy, the possibilities of choice are very limited. In the past it was competition which made inevitable the diminution of costs. In England and in the United States, for instance, during the past century the trend of prices was, on the whole, diminishing. In the industrial markets, in which productivity apparently was then increasing at a higher rate than in agriculture, prices fell considerably with respect to agricultural prices (8). To-day, in many important industrial markets, prices are no longer determined in a really spontaneous way; rather to a considerable extent they are regulated or, as the Americans say, " administered " by big concerns. Wages, in their turn, are regulated to a considerable extent by the trade unions. If we take into account the ever-growing public expenditures, which tend to make the volume of money in circulation grow faster than the volume of goods, the most we can hope for to-day is an approximation to the third

(8) Such a tendency had already been observed by ADAM SMITH, " Wealth of Nations ", book I, chap. XI, sub-section: " Effects of the Progress of Improvement upon Real Price of Manufactures ".

mechanism: incomes increase in proportion to the average increase in productivity; the price level remains stable, while individual prices increase or decrease according to the variations, lower or higher than the average, in productivity. But even if, realistically, we decide to recommend the application of this mechanism, an important qualification should be added which can serve as a practical rule.

When discussing the first mechanism, the classical one, we said that the effects for economic development are most favourable when the prices which diminish *pari passu* with the increase in productivity are those of instrumental goods, particularly of those goods which are at the origin of many productive chains and which, therefore, condition the development of all other goods (9). In these cases, the process of successive reductions of costs acquires the greatest diffusion. Now in a developing economy (as is the Italian one at present) the production of these goods usually tends to grow at a high rate, higher than the average rate for other types of goods. We have seen that, as a rule, the increase in productivity is quicker the quicker is the expansion of production (see above, par. 1). Therefore, the increase in productivity in these industries can be distributed partly through an increase of money incomes and partly through a diminution of prices; not only of relative but also of absolute prices. If the market does not achieve this result spontaneously, a policy can be recommended tending to translate the excess of the specific increase of productivity over the average increase into price diminutions. In the case of imported goods it is through international trade policy that price diminutions can be promoted or, at least, increases can be resisted. We shall return to this later.

We have considered three mechanisms through which the increments in productivity can be distributed. Emphasizing the question of the indebtedness of firms (and the rapidly increasing burden of compounded interests), several economists have maintained the expediency — to promote development — of a gradually but persistently rising price level. Such an opinion, which to-day is again gaining supporters, was already voiced not less than two

(9) The goods which are basic for economic development are relatively few; among them we can list electricity, coal, petroleum, pig iron and steel, lumber, cement.

centuries ago by David Hume (10). This could be considered as a fourth mechanism, different from those already mentioned. Logically, however, this mechanism is on another plane, which has very little in common with the pure and simple consideration of increments in productivity. A rising price level cannot but be the result of a particular money and credit policy; and with such a policy we are not here concerned. However, the considerations expressed before about the third mechanism can be properly adapted to refer also to the case of a rising price level, because here too variations in relative prices (more or less favourable to economic development) do take place. All things considered, the writer again declares that his preference is for the third mechanism (increasing incomes, stable price level with variations in relative prices). A rising price level discourages personal saving and stimulates purely speculative investments — unproductive from the social point of view; moreover, in a situation like the Italian one where bottlenecks in trade channels are widespread it is likely that the prices which rise gradually are retail rather than wholesale prices. Traders rather than productive firms would be favoured, with no advantage for society as a whole (11).

3. *Wages and productivity.* With respect to wages, the main characteristics of the third mechanism are found in the practical rule, so often coming up in discussions on the wage policy of the State and of the trade unions, that wages should increase in proportion to the average increase of productivity.

When one considers the applicability of this rule, one must realize that it presupposes extremely simple assumptions which very seldom correspond to actual conditions. In practice, variations of money wages not only do not accord with variations of productivity but, as a rule, diverge considerably from them (12). This fact

(10) Cited by D. RICARDO, " An Essay on the Influence of a Low Price of Corn on the Profits of Stock ", 1815, *The Works and Correspondence of David Ricardo*, edited by P. Sraffa with the collaboration of M. H. Dobb (Cambridge University Press, 1951), vol. IV, p. 36.

(11) See below, par. 3 (b) of Section II and par. 3 of Section III.

(12) C. KERR, " The Short-Run Behavior of Physical Productivity and Average Hourly Earnings ", *Review of Economics and Statistics*, November 1949, pp. 299-309; see also D. M. EISEMANN, " Inter-Industry Wage Changes, 1939-1947 ", *Review of Economics and Statistics*, November 1956, p. 446.

is to be attributed essentially to variations of the different groups of prices, which are implicitly ignored in the rule under discussion: variations of wholesale prices (of industrial and agricultural products), variations of retail prices of the goods which enter into the "cost of living", and variations of prices of raw materials.

In the long run, the distribution of income between various social categories is not affected, provided that *real* wages increase, approximately, *pari passu* with productivity (and there is no substantial variation in the number of unemployed). As it happens, a certain parallel between the two rates of increase has been noted in those countries where statistics make it possible to carry out a survey over a long period (13). But the parallel is in fact by no means close. In certain countries and at certain times, on the contrary, there has been a sharp divergence between the two rates. As will be seen from Section III of this study, this has been the case in recent years in Italy.

What is the meaning of this divergence?

There are three possibilities. (a) It may indicate that there has been a redistribution of income (*in favour* of wage earners, if the increase in real wages is greater than that in productivity; *at the expense* of wage earners, if the opposite is the case); (b) it may reflect an actual "waste" of the increase in productivity and lastly (c) it may point to a combination of redistribution and "waste".

To clarify the issue, let us take an individual firm, preferably an industrial concern, and try to pinpoint the effects of variations in specific types of relative prices on the firm's profits. Before beginning this analysis, however, we might express two observations on the practical value of the rule of correspondence between real wages and productivity. First, the comparison should be made between real wages and productivity and should refer to a relatively long period. Second, if this comparison shows a systematic divergence between the two rates of increase and, in particular, if the rate of increase of real wages is systematically lower than the rate of increase of productivity, then we will have to examine the reasons for such a divergence. Such an enquiry can serve as a basis for public intervention which, however, cannot be confined to wage

(13) V. E. H. Phelps Brown, "The Long-Term Movement of Real Wages", in *Theory of Wage Determination*, edited by J. T. Dunlop (Macmillan, London, 1937), pp. 48-65.

policy, but necessarily must be co-ordinated with the entire policy for economic development.

II.

The Consequences of Variations in Relative Prices in the Short Run

1. *The elements constituting the total unit cost of the industrial firm.* We assume that the total cost function of the industrial firm in the relevant range may be represented *fairly accurately* by a straight line. This assumption is supported by an increasing number of empirical studies (14) and indeed it is being employed more and more frequently in theoretical analyses (15). A linear function of total cost implies that marginal cost is constant and is *equal to variable cost*: this not only greatly simplifies theoretical analysis but makes it easier to bridge the gap between the theory of costs and real occurrences in industry. *In particular, it brings into a direct relationship the cost function and both rates of wages and prices of raw materials, which is practically impossible in the case of non-linear functions of total cost.*

A linear function of total cost can be expressed simply as a binomial

$$C = dx + k$$

where C is total cost, d, is the direct or variable or prime cost, x the quantity produced; k is the fixed cost for a given period, usually a year, and includes the allowance for plant amortisation, interest on money borrowed to buy the plant, the salaries of the technical

(14) *Cf.* H. Staehle, "The Measurement of Statistical Cost Functions: An Appraisal of Some Recent Contributions", *American Economic Review*, June 1942; "Cost Behaviour and Price Policy" (National Bureau of Economic Research, New York, 1943); S. A. Tsiang, "The Variations of Real Wages and Profit Margins in Relation to the Trade Cycle" (Pitman, London, 1947), pp. 71-74; W. J. Eiteman and G. E. Guthrie, "The Shape of the Average Cost Curve", *American Economic Review*, December 1952, pp. 832-838; P. Sylos Labini, "Oligopolio e progresso tecnico", *op. cit.*, pp. 42-47.

(15) *Cf.* M. Kalecki, "The Theory of Economic Dynamics" (Allen and Unwin, London, 1951), chapters I-II; R. Ruggles, "The Nature of Price Flexibility", in *Business Concentration and Price Policy* (National Bureau of Economic Research, New York, 1955), pp. 441-505.

and managerial staffs and other overhead costs (16). The total unit cost is

$$c = d + \frac{k}{x} \qquad (17)$$

The direct cost, d, is the sum of the unit cost of labour, l, and the unit cost of energy and raw materials, m:

$$d = l + m$$

The unit cost of labour, in turn, may be expressed as the ratio of the wage bill, S, and the quantity produced, x: $l = \frac{S}{x}$.

The wage bill is the product of the hourly wage rate and the total number of hours worked in the period under review ($S = s\ h$), and the quantity, x, may be expressed as the product of man-hour

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(16) Strictly speaking, not all these costs are "fixed" in the absolute sense, even in relatively short periods. Some of them remain fixed in the case of very wide variations in the quantity produced, others in the case of lesser variations. In any case, these costs do not vary in proportion to the units produced.

(17) The total cost function traditionally ascribed to a firm (operating in competitive conditions) is of the following type:

$$[1] \quad C = ax^3 - bx^2 + cx + k$$

from which we can obtain the average unit cost function:

$$[2] \quad c = ax^2 - bx + c + \frac{k}{x}$$

the marginal cost function:

$$[3] \quad \frac{dC}{dx} = 3ax^2 - 2bx + c$$

and, lastly, that of the average variable cost:

$$[4] \quad c_v = ax - bx + c.$$

(The last three functions, as readers are aware, U-shaped).

To appreciate the major simplification resulting from a linear function of cost, compare the above four functions with the corresponding functions for total linear cost:

$$[1'] \quad C = dx + k$$

$$[2'] \quad c = d + \frac{k}{x}$$

$$[3'] \quad \frac{dC}{dx} = d$$

$$[4'] \quad c_v = d.$$

productivity, a, and the total number of hours worked ($x = ah$). It follows that the unit cost of labour may be written as

$$l = \frac{s}{a}\frac{h}{h} = \frac{s}{a}.$$

The total unit cost is therefore

$$c = \frac{s}{a} + m + \frac{k}{x}$$

The difference between the price, p, and the unit cost gives the unit profit, g:

$$p - c = g,$$

or

$$p - \frac{s}{a} - m - \frac{k}{x} = g.$$

We now have all the elements needed to follow the variations in unit profit; in actual fact, these variations depend on variations in the relations between prices and incomes, as we shall see shortly when we analyse them. More specifically, in the short run, variations in the profitability of industrial concerns depend on variations:

— in the wholesale prices of industrial products,
— in hourly money wages,
— in hourly productivity,
— in the wholesale prices of raw materials,
— in the quantities produced

and, in the non short term period, on variations in the prices of buildings and machines, long term interest rates and the salaries of the managerial staff.

Variations in both unit and total profits have a bearing on development. In an economy based on private enterprise profit is both a stimulus to expansion or at least to continued production, and one of the main sources from which the concern is financed. If g diminishes, development tends to slow down; if g increases as a result of a reduction of costs, a boost is given to expansion. If, however, g increases and is kept high not by continuous reductions in cost elements but by monopolistic or oligopolistic price policies,

expansion is checked from another direction (18). In addition, if total profits are invested, a fillip is given to expansion. If, as against this, they are used for unproductive purposes, development is hampered. We shall assume, merely in order not to complicate the discussion, that the firm uses its profits productively and that, in consequence, a reduction in g will operate against development (19).

Let us then examine the forces making for variations in unit profits.

The simple formula indicated above shows that, if the hourly wage increases in proportion to productivity, the unit cost of labour does not vary, nor do unit profits. At this point, we can see the meaning of the practical rule that wages should increase in proportion to productivity. It would be immediately applicable only if hourly productivity increased at the same rate in all firms and if the other cost factors and the prices of products remained unchanged. That is not the case. All that can be asserted is that when, in an individual concern, wages and productivity increase in the same proportion, the cost of labour does not vary.

If hourly wages outstrip productivity, are unit profits reduced?

If *ceteris* are not *paribus*, that does not necessarily follow. If s/a increases, but if, at the same time, p, the price of the product, increases or if m, the unit cost of raw materials, is cut by a fall in prices, or if k, the fixed annual cost, remains unaltered but x, the quantity produced and sold, increases, and hence k/x the fixed unit cost is reduced (20), then the unit profit may remain unaltered and even increase, in spite of the increase in the unit cost of labour s/a.

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(18) *Cf.* A. Breglia, "Profitti sterili e profitto fecondo" (Sterile profits and fruitful profit), *Giornale degli Economisti*, March-April, 1953, pp. 211-213.

(19) Some of the possible consequences of non-productive uses of profits have been examined in the monograph mentioned earlier: "Oligopolio e progresso tecnico", part II, chapter II, par. 4 and 5.

(20) If k is relatively large, an increase of x may lead to a marked diminution of k/x: in that case, the variations in this ratio are the decisive factor in regulating the variations in the average unit cost and hence of unit profits. In any case, variations in global profits are determined mainly by variations in x. *Cf.* M. Fanno, "La teoria delle fluttuazioni economiche" (UTET, Torino, 1947), pp. 126-7, footnote; H. H. Wein, "Wages and Prices - A Case Study", *Review of Economic Statistics*, May 1947, pp. 108-123; J. I. Dunlop, "Review of Wage-Price Policy", in "Symposium: Wage Policy", *Review of Economic Statistics*, August, 1947, p. 159.

Vice versa, if s/a diminishes because, for example, wages are unchanged but productivity increases, it does not necessarily mean that g will increase. It will not increase if there is a decline in p or an increase in one of the other cost factors.

Let us take a closer look at the factors of direct costs, the unit cost of labour, s/a, and the unit cost of raw materials, m.

What are the forces affecting s/a?

It is notorious that the labour market is usually under conditions of bilateral monopoly. There is the downward push of the industrialists' associations and the upward push of the workers' trade unions. But there is a factor making for variations which in Italy, at least in industry, operates quite automatically, that is the cost of living index to which wages are tied by a sliding scale system. In other words, variations in the cost of living index constitute a minimum limit (a sliding limit) to variations in money wages.

What do variations in the cost of living depend on?

If all prices, including those of goods comprised in the cost of living and those of industrial products, varied in the same proportion, there would be no problem for the firm. The increase in hourly wages, in the same proportion as the increase in the cost of living, and the increase in the prices of the other instrumental goods would be offset by an increase in p. But the problems are caused by the fact that it is rare for the variations in the different categories of prices to be proportionate. This is particularly so in the case of the prices of industrial goods in relation to the cost of living. It is mainly due to two reasons. In the first place, the cost of living index is a weighted average of prices, largely retail prices, whereas the prices which matter to the industrial entrepreneur are wholesale prices. In the second place, the goods included in the cost of living index in a number of countries (such as Italy) are for the major part food items. It is common knowledge that variations in the prices of these goods are more violent and more frequent than in the case of industrial products. In certain circumstances the two categories of prices may even vary inversely.

If the prices of industrial products increase while the cost of living remains unchanged, everyone in industry benefits. The workers can obtain higher nominal wages which, in view of the stability of the cost of living, are in effect higher real wages. The

industrialists obtain higher gross and net receipts in spite of increased wages.

Conversely, if the cost of living increases, while the prices of industrial products do not, everyone in industry is worse off. The workers are able to obtain increasing money wages only after some delay (for even the sliding scale does not go into effect at once) and hence there is a cut in their real wages. A number of workers are laid off by the firms, whose unit cost of labour increases without any corresponding increase in receipts (for the prices of industrial products are constant *ex hypothesi*).

Similar considerations apply to relative prices for raw materials. If the prices of raw materials fall, while those of industrial products remain unchanged, the direct cost of these products diminishes. Industrialists are in a position to grant wage increases even greater than the increase in productivity, without suffering a reduction in their net unit profits, and may even obtain increased earnings. In industry, everyone is better off. Conversely, if the prices of raw materials rise, while the prices of industrial products do not vary, both industrialists and workers will be worse off. The direct cost increases and unit profits are pulled down. The industrialists are tempted to offset this increase by trying to cut wages or at least oppose claims for raises in wages, even if the productivity of labour is rising.

2. *Variations in relative prices and in income distribution.* Hitherto we have dealt only with industry. But the economist must examine the economy of a society as a whole. It may be pointed out that, if the cost of living increases because of a rise in the prices of agricultural products, industry's loss will be agriculture's gain. In the same way, if the cost of living increases owing to a rise in retail prices, while industrial and agricultural wholesale prices do not vary, both industry and agriculture will suffer, while traders will do well. Lastly, if the relative prices of raw materials increase, the producers at least will stand to gain. In all these cases, then, it would seem that variations in relative prices merely lead to a redistribution of the national income (21).

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(21) The quantitative evaluation of transfers of income due to variations in relative prices is a complex problem with which we are not here concerned. One of the first attempts to approach the problem organically was made by P. N. Rasmussen (" On Changes in Inter-

What actually happens, however, is that not only the distribution of income but the development of income itself is affected. The fact is that one kind of redistribution may foster, while another kind hampers, the general expansion of income.

To present the case for this view, we must take as our starting point the increase in industrial productivity and examine its consequences *on economic development as a whole* in each of the following cases: (a) constant industrial prices with rising agricultural prices; (b) constant wholesale prices (both industrial and agricultural) with rising retail prices; (c) constant industrial prices with rising raw materials prices. We shall see that in each of these cases there can be a veritable "waste" of the increase in productivity. There may be other instances of variations in relative prices entailing similar results. For example, if incomes in industry increase faster than average productivity because of monopolistic price and wage policies, the overall expansion of the economy will be prejudiced. It would seem, however, that these three cases deserve a special analysis in view of the important rôle they may play in practice in an expanding economy.

3. *The "waste" of the increase in productivity. (a) Increase of the relative prices of agricultural products.* Let us, then, suppose that productivity in industry is rising and that money incomes — wages and profits — are rising on the average in the same proportion as productivity. The increase in wages will be reflected in an increase in the demand for food products which will be the greater, the lower the absolute income of the workers.

If the expansion of agricultural production consequent upon the increase in demand entails — in accordance with the Ricardian model — increasing costs, and hence prices, because diminishing returns from the land are not offset by technical progress, the net income of farmers, particularly of those cultivating the richest land, will increase, and, in the long run, land rents will go up too. But the total increase in the farmers' net income is not

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sectorial Terms of Trade", an essay in the volume *The Structural Interdependence of the Economy*, edited by T. Barna, Giuffrè, Milano, 1956). Rasmussen's method has been discussed by VERA CAO-PINNA in her article: "Determinazione dei trasferimenti di reddito tra i singoli settori produttivi per effetto delle variazioni nel sistema dei prezzi relativi" (The determination of income transfers between individual productive sectors as a result of variations in the system of relative prices), *Rivista di Economia Agraria*, June 1956, pp. 191-207.

proportional to the increase in demand, precisely because production expands at rising costs. What happens, therefore, is partly a redistribution of the increase in industrial productivity in favour of the farmers and partly a veritable " waste " of the increased productivity. But *the redistribution of social income itself is not capable of promoting a further expansion of income because the cost of living rises with the increase in agricultural prices and in consequence all industrial and agricultural wages rise or tend to rise too.* The direct costs of farms increase. As to industrial concerns, there are two possibilities. Either the increase in wages due to the increased cost of living tends to be greater than the increase in productivity, in which case the direct costs of industrial concerns go up, unit profits are reduced (in accordance with the Ricardian model) and further expansion is discouraged. Alternatively, the rise in the cost of living is lower than the increase in wages, which, *ex hypothesi*, has already taken place in the same proportion as the increase in productivity. In that case, there is no increase in the direct costs of industrial concerns, but the increase in wages is absorbed in the higher cost of living. There could have been a widening of the market for products of every kind — industrial or agricultural — but in fact there is nothing of the kind. That, in another way, dampens further development.

The situation is quite different if the farmers' net income increases not because of rises in prices but because of a reduction of costs owing to the use of more efficient producers' goods or to cuts in prices of those goods (e.g. farm machines, materials for rural building, chemical fertilisers). If farm prices do not vary, or if they fall, but less than costs, the net farm income increases. Here the growth of farm income constitutes a net addition to national income (22). It does not have a depressing effect on expansion. Indeed, it stimulates it by widening the market for all products and (in the event of farm prices falling) it reduces the cost of living and hence attenuates the upward pressure of money wages.

If a " spontaneous " increase in farm prices acts as a check on economic expansion, the effect is not so grave as that of an increase in prices, or their maintenance at a high level, by an " artificial " support. Such a policy can be carried out either by customs protec-

(22) *Cf.* A. Breglia, " Profitti sterili e profitto fecondo ", *op. cit.*

tion or, more directly and more effectively, by price fixing on the part of the State. In this case, the increase in prices is *stable* and is regarded as such by the farmers, who, therefore, are readier to expand production even at higher costs and bring under the plough less and less fertile land. The increase in costs and prices gives rise to a " waste " of the increase in productivity and, by its repercussions on the cost of living and on wages, hampers expansion.

The question of the relations between farm and industrial prices is both serious and complex for two reasons. First and foremost, industrial firms and especially big modern combines, generally speaking, have a far greater market power than farms, whether large or small. The former are to some extent able to administer the prices of their goods. The latter, *if left to their own devices*, must accept the prices determined by the market. The former are in a position to avoid reducing prices as productivity increases and to transform rising margins into greater money incomes (profits and wages); the latter, *if left to their own devices*, cannot do so. In short, if we may adopt the terms used by Pantaleoni in a famous essay (23), it can be said that, as a contracting party, industry is constitutionally " strong ", while agriculture is constitutionally " weak ". In addition, for reasons inherent in the structure of production itself, seasonal variations of prices are far greater in agriculture than in industry. This gives rise to abrupt and unpredictable fluctuations in farm incomes. The stabilisation of agricultural prices enabling farmers to draw up more efficient plans would be of help to production. Lastly, above all in backward agrarian economies, producers, who are often ignorant and badly organised, are an easy prey for speculating middle men. In such economies, the gap between prices to producers and prices to consumers is relatively large. This harms agrarian producers and does not benefit society as a whole.

There is a real problem, then, which has been tackled in a number of countries, by means of the artificial support of agricultural prices. Is this the best way?

No objections are raised when the State intervenes in agricultural markets with the aim of moderating short term variations

(23) " Tentativo di analisi del concetto di ' forte e debole ' in economia " (Attempt to analyse the concept of " strong and weak " in economics), in *Erotemi di economia*, Laterza, Bari, 1925.

(whether seasonal or cyclical) in prices and diminishing the gap between prices to the producer and those paid by the consumer. This policy is undoubtedly sound. The objection is to a policy aimed at maintaining these prices at artificially high or even rising levels over long term periods (24). The fact is that this support affects, and cannot but affect, only some products, however important. This distorts the distribution of crops, gives rise to inequalities between the producers of the various goods (25), and creates what is neither more nor less than a vicious circle. An incentive is given to increase production and productivity in the protected crops. A tendency to accumulate stocks is set up and price support becomes more and more difficult and onerous. In the end measures have to be taken which boomerang on the farmers; for example, the forced restriction of areas under cultivation (" acreage allotments " in the United States). In addition, there is, of course, the financial burden which the policy entails.

If it is desired to aid agriculture, other forms of intervention are preferable. It would be better, for example, to grant financial aid to the farmers for the purchase of the instrumental goods needed for agricultural development, or supply them with these goods at low prices. This policy would, it is true, like price support, entail expenditure by the State, but it would avoid the much heavier economic burden on the community (referred to above) in the form of higher costs in all branches of production. In addition, it would have the distinct advantage of giving a fillip to agricultural expansion itself. Even a policy based on subsidies or one of tax reliefs is to be preferred to the support policy. Any of the policies here

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(24) In practice, it is extremely difficult to distinguish between supports designed to stabilise farm prices in the short run without raising them artificially, and supports which in fact push them up. Moreover, once the support machinery has been set up, it is hard for the government to resist political and electoral pressures tending to force up prices. It is therefore essential to find an objective yardstick to define the stabilisation pure and simple of agricultural prices. (Some economists have proposed that internal prices should somehow be geared to international prices. These prices, considering the strong influence exercised by the American agricultural markets, where many prices are supported, are themselves not really " spontaneous " or market prices; but in certain countries, such as Italy, where the prices of several important agricultural products are supported at levels which are markedly higher than the international or American levels, such a policy would already represent considerable progress).

(25) In an agrarian economy, such as the Italian one, where subsistence farming is still frequent on tiny holdings, *there arise also serious inequalities between producers of the same type of good*. Such holdings derive little or no benefit from price support.

recommended would make possible a differential treatment of the various types of farms, e.g. according to size of farm and fertility of the land.

In a word, then, an agrarian problem does exist; but the policy of price supports at artificially high levels is the worst possible solution. There remains the problem of short term fluctuations in agricultural prices; but this is not the place to discuss that issue (26).

3. (b) *Increase of commercial margins.* If retail prices are rising, while wholesale prices remain unchanged, the unit commercial margins increase. This, however, does not depend on reductions of distributive costs and on greater efficiency in commercial services. Such an increase in efficiency brings lower and not higher unit margins. A rising gap between the two categories of prices means either increases in costs, that is, a loss for the social economy, or an increase in net margins, that is, it works to the advantage of traders and is sterile from the social point of view. It does not stimulate but hinders expansion. In fact, this growing divergence increases the cost of living or prevents it from falling. In this way, through wage increases, it raises the direct costs of all undertakings and reduces (or prevents the growth of) the purchasing power of the various income receivers and in particular of the wage earners, on the same lines as happens in the case studied in the previous paragraph. It is by no means certain that the increase in net margins means that the bigger tradesmen are able to obtain extraordinary gains; this is not the case if that increase is accompanied by the insertion in commerce of a growing number of small operators who cannot find work in other productive occupations and who succeed in carving out for themselves a little " economic trench " at some stage of the distributive process. Thus a host of small net margins springs up. Many of them remain small, giving rise to incomes which are barely sufficient for a living. Nevertheless, these same margins hinder economic development.

3. (c) *Increase of the relative prices of raw materials.* Similar observations to those made as regards the relative prices of agricultural products may be mentioned in connection with variations in

(26) *Cf.* the analysis by Demaria in the essay published in the number of January 1956 of the *Rivista Internazionale di Scienze Economiche e Commerciali*.

the relative prices of raw materials — increase of raw material prices as compared with industrial prices. Nevertheless, a number of important considerations must be added if raw materials are not produced at home but are imported, as is often the case in Italy. Here the increase in relative prices does not even lead to that partial redistribution of incomes in favour of home producers to which we have alluded in the previous paragraphs.

The question has a particular bearing on wages. It seems clear from the formula proposed by us that, especially in the short run, variations in wage rates are in opposition to those of the prices of raw materials. *Ceteris paribus*, if these prices fall wages can increase without forcing down unit profit. Conversely, if the prices of raw materials rise, the entrepreneurs will oppose wage increases. Tsiang has shown that, in the United States, price movements of finished industrial products, raw materials and wages tend to a certain extent to offset each other. For example, the fall in the prices of raw materials is often accompanied by an increase in the ratio of wages to the prices of finished products. Conversely, an increase in those prices is accompanied by a diminution in this ratio (27). In an article published in 1925, Taussig showed that in the period between 1900 and 1914 there was a high direct correlation in England between nominal wages and " terms of trade ", i.e. the ratios between the prices of exports and those of imports (28). Taussig did not provide a detailed explanation of this correlation. It can in fact be explained if it is remembered that England exports mainly finished industrial products and imports mainly raw materials and foodstuffs. A reduction in the relative prices of raw materials makes it possible to increase money wages. An increase in the relative prices of raw materials has the opposite consequences (29).

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(27) S. C. Tsiang, *op. cit.*, pp. 64-67.

(28) F. W. Taussig, " The Change in Great Britain's Foreign Trade Terms after 1900 ", *Economic Journal*, March 1925, pp. 1-10.

(29) Strictly speaking, however, still in connection with England, money wages should be compared with the variations of that particular category of " terms of trade " formed by the relation between prices of industrial products exported and those of imported raw materials. On the contrary, variations in the general " terms of trade " (including also prices of agricultural food products which in their turn act upon the cost of living) should be compared with variations in real wages (index of money wages divided by the cost of living index). The present writer carried out both comparisons for 1870-1938 in the first case and for 1850-1913 in the second. The detailed comparisons between the various statistical

III.

Applicaton of the Analysis to the Italian Economy

1. *Real wages and productivity in industry; the "waste" of the increase in productivity.* In an excellent article on the Italian economy, Vera Lutz has studied the variations in real wages and productivity in industry, with special reference to what is customarily called big or modern industry, where the proportion of small units is very low and where statistics are much fuller and more reliable than those for other industrial activities (30). Her study provides the following percentage variations in prices, wages and hourly productivity from 1950-1955. (The data, except for items 1, 6 and 8, refer to "big industry").

1.	Wholesale prices for industrial products	+ 3%
2.	Nominal hourly wages	+ 36%
3.	Production	+ 63%
4.	Employment (total hours worked)	+ 4%
5.	Hourly productivity	+ 57%
6.	Cost of living	+ 20%
7.	Real hourly wages	+ 13%
8.	Prices of raw materials	+ 19% (31)

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series would be extremely interesting; but this is not the place to submit them. To put it briefly, the results are as follows: *the correlation between specific "terms of trade" (raw materials) and money wages is still higher than that brought out by Taussig. The correlation between the general terms of trade and real wages is just as high.* The second correlation is explained not only on the basis of the points made in this paragraph on the relative prices of raw materials but also in conjunction with those made in the previous paragraph on the variations in the relative prices of agricultural products.

The series of specific terms of trade are to be found in the article by K. MARTIN and F. G. THACKERAY, "The Terms of Trade of Selected Countries", 1870-1938, *Bulletin of the Oxford University Institute of Statistics*, November 1948, pp. 382-3; the series of general terms of trade can be derived from the article by A. IMLAH, "The Terms of Trade of the United Kingdom 1793-1913, *Journal of Economic History*, 1950, pp. 177-182. The wages series are to be found in the book by W. LAYTON and G. CROWTHER, "An Introduction to the Study of Prices" (MacMillan, London, 1935), pp. 265-6; in the article by E. H. PHELPS BROWN and S. V. HOPKINS, "Wage Rates in Five Countries, 1860-1939", *Oxford Economic Papers*, June 1950, pp. 264-5; and in the "Statistical Abstract of the United Kingdom".

(30) V. LUTZ, "Some Characteristics of Italian Economic Development, 1950-1955", in this *Review*, 1956, No. 39. The author divides Italian industry into two groups the first of which (referred to in our text) employs over half of all industrial workers (2.3 million out of 4.3).

(31) This percentage has been arrived at by the writer, using the index numbers of

It must be borne in mind that these data are very much of an approximation. This is particularly so for those figures concerning productivity in view of the considerable difficulties in effecting the necessary statistical calculations (32). These figures, therefore, may be useful only as an indication of the order of magnitude of the variations. They lay no claim to precision.

How was the increase in productivity distributed?

Real wages increased by only 13%, while productivity increased by 57%. It is probable that unit profits have increased. It is certain that overall global profits have gone up, considering the great increase in production. *But to a considerable extent, the increase in productivity has not been tapped either by the industrialists or by workers or by other firms or by consumers.* (The price level has not fallen. Wholesale prices have gone up slightly while retail prices have shot up). *Partly this increase has been "wasted" because of the increase in the cost of living* which, in its turn, depends on variations in agricultural prices (of 10-12%) and on the increasing gap between retail and wholesale prices, i.e. commercial margins (8-10%); therefore, the 36% rise in nominal wages has been reflected in a much smaller increase in real wages (13%) (33). *Partly the increase in productivity has been "wasted" because of the increase in the price of raw materials* (19%), many of which are imported.

2. *The relative prices of agricultural products.* The first cause of waste of the increase in productivity lies, therefore, in the absolute

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wholesale prices of "raw materials" in the *Bollettino mensile di statistica*. It is not easy to identify the raw materials used in "big industry" (to which the other data refer). Moreover, the prices of some of the main raw materials and sources of energy presumably used by "big industry" have varied in very different ways in the period under consideration: oil 5%, coal 24%, electricity 0, methane gas 0, cotton 11%, wool 36%, scrap iron and steel 44%, pig iron 17%, mineral perphosphates 0, wood 90% (*Bollettino mensile di statistica*; *Statistica mensile del commercio con l'estero*). Since the variations differ so widely, any average would be bound to be unrepresentative. (Only a study of individual industries can lead to precise conclusions. Below, in paragraph 4, we shall briefly consider the case of the textile industry). For this reason and because all the data cited in the text are merely intended to provide a very broad indication, we may make do with the percentage variation for the above said prices of "raw materials".

(32) S. Fabricant, "Of Productivity Statistics: An Admonition", *Review of Economics and Statistics*, 1949, No. 4, pp. 309-11. *Cf.* also note 2 of the first paragraph in the first section.

(33) To a small extent (1-2%), the increase in the cost of living was due to a rise in rents.

and relative increase in the prices of agricultural products. Now it should be noted that, whereas in economically advanced countries, where average incomes are high, the proportion of a typical worker's family budget which goes into food is relatively small (20-30%), this percentage is very high in a country such as Italy where average incomes are relatively low. Actually it is about 70% (34). Consequently, in a country like the United States, variations in the prices of agricultural food products have relatively less influence on the cost of living and hence on money wages, and, in this respect, the question of " waste " has only limited relevance. Such countries are in a better position to bear higher prices for agricultural products. For the United States, the main factor in the cost of the price support policy is the financial burden (35). What I have termed the economic burden is not so serious (paragraph 3 of Section II). The question of waste, on the contrary, is of great importance for a country like Italy (36).

Ricardo's observation is still valid for our country:

" Corn being one of the chief articles on which the wages of labour are expended, its value, to a great degree, regulates wages. [. . . . .]. With a permanently high price of corn, caused by increased labour on the land, wages would be high; and, as commodities would not rise on account of the rise of wages, profits would necessarily fall " (37).

According to Ricardo, as will be remembered, the fall in profits leads to a halt in the accumulation, i.e. in the process of development.

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(34) The percentage of total national expenditure which goes on food bought by all consumers (workers and others) is somewhat lower: 57.8%. *Cf.* the *Bollettino di informazioni dell'Associazione per lo Sviluppo Industriale del Mezzogiorno* (SVIMEZ), February-March 1956, p. 231.

(35) This, incidentally, is very heavy. At the end of 1955, the value of the stocks accumulated by the Federal Government to implement its agricultural price support policy was over 8 billion dollars (*i.e.* 5,000,000 million lire, or more than twice the total expenditure of the Italian Budget); " Midyear Economic Report of the President transmitted to the Congress ", January 1956, p. 129.

(36) The purely financial burden is very heavy on Italy too. Although the precise amount is not known, since it is lumped together with the mysterious and chaotic " gestioni speciali " (special subheads of the budget), it would appear to amount to several ten thousand million lire.

(37) " On Protection to Agriculture ", 1822, an essay in volume IV of *The Works and Correspondence of David Ricardo*, *op. cit.*, pp. 236-7; *Cf.* also " An Essay on the Influence of a Low Price of Corn on the Profits of Stock ", *op. cit.*

Both Ricardo's contention and his recommendation that there should be a gradual reduction in tariffs up to a certain level (though in our case the main point is to reduce the political support of prices) are still valid for Italy (38). Though not bringing in Ricardo, Mrs Lutz has made this point very clearly in the article quoted above (p. 184):

" . . . the tie-up between wages and the cost of living means that food prices for all practical purposes become a direct cost of industry. It follows that industrial expansion and agricultural protection are to a certain extent mutually exclusive aims. Agricultural protection, were it to be pursued, might constitute for industry as a whole a limiting factor similar to that which steel protection once implied for the engineering sector ".

Nowadays, it is possible to add two considerations to Ricardo's argument and recommendation.

First, a gradual reduction in agricultural prices, by giving a downward push to the cost of living, increases the purchasing power of wages without weighing on industrial costs and thus permits a widening of the market for all products, whether industrial or agricultural. (This point lies outside the scope of the Ricardian analysis. Ricardo usually assumes constant real wages).

The second additional consideration has already been set out above. Nowadays, as opposed to what happened in Ricardo's time, an agrarian problem does exist essentially for structural reasons. But the best way to deal with this problem is not the price support policy. It is by subsidies, tax relief or financial aid in the purchase of instrumental goods. The policy of supporting prices at a high level is the worst of all solutions (39). It not only gives rise to a heavy " economic " burden (increase in the costs of all firms) and to a by no means slight " financial " burden on the State budget — as already mentioned — but also involves a burden which might be termed a " monetary " one.

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(38) The writer does not, however, regard as necessarily valid in modern industrial conditions (where, unlike the circumstances in Ricardo's days, situations of " concentrated oligopoly " are frequent) the assertion that " commodities would not rise on account of the rise of wages ". *Cf.* " Oligopolio e progresso tecnico ", *op. cit.*, part I, chapter III.

(39) In Italy the commodities mainly affected by this policy are wheat, rice, sugar and hemp. It has led to increases in prices or has prevented them from falling and kept them at artificially high levels. For this reason, the price of wheat in Italy is distinctly higher than international quotations, although the latter, owing to policies pursued by the United States,

In Italy, the "monetary" burden has assumed proportions which can only be defined as enormous. The value of the "pool bills" discounted and rediscounted every year by the *Banca d'Italia* and other credit institutes is of the order of 490,000 million lire. (The volume of bank-notes in circulation in 1956 was 1,500,000 million). The losses resulting from administration are over 230,000 million (40). To cover these losses, means of payment are issued which, at least at present, lie like a deadweight on circulation. This aggravates inflationary pressure (41). In addition, the rediscount of the pool bills, which now forms the greater part of the *Banca d'Italia*'s portfolio, imposes rigid restrictions on the Banca's freedom to manoeuvre and on monetary and credit policy.

The objections to the policy of agricultural price supports are fully justified if, as has hitherto been the case in Italy, prices are in fact maintained at a high and even rising level. The case against price support loses force (though still remaining valid to some extent) if prices are maintained at levels not exceeding international

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are, as we have already pointed out, "artificial". Here are the prices of home wheat and those of the imported article including transport. The prices are in lire per quintal (*i.e.* 100 kilogrammes):

	Prices for domestic wheat (Administration of the Public Pool 1955-56)	*Import prices* (1956) lowest	average
Soft wheat	7,000	4,800	5,000
Hard wheat	8,000	4,900	6,500

Sources: Federazione Italiana dei Consorzi Agrari, "Listino dei prezzi del grano conferito agli ammassi"; *Statistica mensile del commercio con l'estero*, December 1956. The price of imported wheat varies widely, depending on origin, transportation and the specific import-export agreements. For this reason, we have shown the minimum and average prices separately.

(40) *Cf.* "La Relazione del Governatore della Banca d'Italia all'Assemblea Generale Ordinaria dei Partecipanti" (Report of the Governor of the Banca d'Italia) for 1956, p. 26 et seq.

(41) The yearly losses from the administration of the scheme are caused by the accumulation of growing stocks which lie unsold in the warehouses. This is only due in part, however, to the policy of agricultural price support and to the expansion of home agricultural production. A large share of the responsibility for the losses must be attributed to "conditioned" imports. In fact, with a view to facilitating the export of certain industrial products, trade agreements have been concluded by which a number of countries producing agricultural commodities purchase specific industrial products from us *on condition* that we buy their agricultural products. The resulting distortion is not due to farm prices policy but to foreign trade policy, which is directed to favour specific industrial groups. (I am indebted for this observation to Prof. Federico Caffè). It is therefore urgently necessary to revise radically both farm price policy and foreign commercial policy, with a view to bringing them into line with the policy of economic development which the Government professes to pursue.

price levels. A policy on these lines might be supplemented by other measures of the kind suggested above. In any case, the objective to be achieved should be the progressive reduction and ultimately the elimination of all three burdens in question — " economic ", " financial " and " monetary " — which at present impose a serious check on Italy's economic expansion.

3. *Commercial margins.* Another cause of the waste of the increase of productivity is the growing divergence between wholesale and retail prices. Various measures have been suggested to reduce this gap (such as the suppression of the trading licence system). These measures are intended to stimulate competition and do away with monopolistic obstacles hampering distributive channels. The problem, however, is one of great complexity. The fact is that trading conditions are closely linked to general economic development. A sharp and uninterrupted increase in the outlets for capital and labour in industry, or at any rate in the non-commercial sectors, would reduce the incentive to dig " economic trenches " in commerce and would make possible an improvement in trading efficiency. The result would be a cut in commercial margins.

4. *The relative prices of raw materials; the case of the textile industry.* In the period 1950-55 under consideration, raw materials have, on the average, gone up steeply. The increase is estimated at 19%. Since a good deal of the more important materials are imported, there is a clear loss to Italy, without even a redistribution of incomes (42). It has already been pointed out that the situation varies widely from one industry to another: these price increases have varied considerably and have had more or less negative consequences according to the price variations of the finished products. It is, again, the *relative* variations which are of interest. These variations have had particularly adverse effects in the textile industry. Here are the data for cotton and wool (43):

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(42) The greatest price increases have in fact been those in imported materials: coal (24%), cotton (11%), wool (36%), scrap iron (44%), wood (90%).

(43) *Source*: Annuario Italiano di Statistica, 1953, p. 317, 1955, p. 444, 1956, p. 300 and 343.

(a)	Price of raw cotton	+ 11%
(b)	Price of cotton fabrics	— 18%
	Ratio a/b (1950 = 100)	135.4
(c)	Price of unprocessed wool . . .	+ 36%
(d)	Price of woollens	— 27%
	Ratio c/d (1950 = 100)	186.3

It will be remembered that, in the period 1950-55, after a short-lived burst of prosperity, the textile industry was hit by a fairly serious crisis from which it has not yet fully recovered. The causes of that crisis include the domestic competition from chemical fibres and foreign competition. As a matter of fact, there has been a substantial decline in exports — even sharper than that suffered by other European countries. Mrs Lutz observes in this connection that in Italy the textile crisis and the contraction in exports were more marked than elsewhere. She attributes this to the increase in labour costs and makes a number of interesting points on the subject (44). The present writer, basing himself on the data set out above, attaches more weight to the deterioration of the relative prices of raw materials. In particular, hourly money wages in the cotton and woollen industry went up less than the average (34% and 30% against 36%) and, owing to the increase in productivity, the unit cost of labour increased relatively little or did not increase at all (45).

This example shows the importance for general economic development, and especially for industrial development, of a com-

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(44) *Op. cit.*, pp. 242-3.

(45) Here are the detailed data for 1955 (1950 = 100):

	Average hourly wages	Hours worked	Output	Hourly productivity	Unit cost of labour
	s	h	x	$a = \frac{x}{h}$	$\frac{s}{a}$
Cotton manufacturing . .	134	77.5	96	124	108
Wool manufacturing . .	130	92.5	120	130	100

(The fall in the output of the cotton manufacturing shows that this industry was hit worse than wool, where production went up).

Sources: Hourly wages and hours worked: *Statistiche del Lavoro*, Ministero del Lavoro, 1950, No. 7, pp. 18 and 22 and 1955, Nos. 4-5-6, pp. 20 and 24. Output: *Bollettino Mensile di Statistica*, 1951, No. 3, pp. 49 and 1956, No. 4, p. 28. Since the Ministry of Labour publishes only monthly statistics without giving the annual averages, the figures for March have been used as being representative figures.

mercial and foreign exchange policy which is supple enough to take into account variations in the prices of raw materials and which tends to reduce the adverse movements of such prices.

IV.

Conclusions

Let us recall some of the points which have emerged in the previous discussion.

1) Of the three mechanisms through which the increase of productivity can be distributed, under modern conditions the third one seems to be the most advantageous: money incomes increasing in proportion to the average increase of productivity; prices, on the average, approximately stable, with increasing or decreasing individual prices depending on whether the rate of increase of productivity, in each individual industry, is lower or higher than the average. If market forces do not spontaneously bring about such a result, State intervention should be recommended. In particular, such an intervention should aim at insuring that the excess of the specific increase of productivity over the average be actually translated into price decreases in the case of fundamental instrumental goods, conditioning the development of all other productions. This particular result is similar to that spontaneously brought about by the classical mechanism; it can and should be pursued under modern conditions.

2) The practical rule, relevant for the wage policy of the State and the trade unions, according to which wages should increase in proportion to productivity, can serve as a guide only with reference to real wages and to the long run.

3) Variations in relative prices determine a redistribution of income between productive sectors and social categories. Some of these variations are prejudicial to the general economic development and tend to entail a veritable waste of the increase in productivity. In particular, a waste of this kind may occur:

(a) when the relative prices of agricultural products increase;

(b) when the gap between retail and wholesale prices increases;

(c) when the relative prices of raw materials increase.

The "waste" under (a) is the more serious the greater the proportion of the workers' family budget is spent on food and the more closely the country concerned approaches a "Ricardian" situation. This is, as it happens, the case for Italy. It follows that there, far more than in countries where per capita incomes are high, a policy of agricultural price supports at artificially high levels is both onerous and detrimental to the development of the economy as a whole.

Rome PAOLO SYLOS LABINI

Post-Accord Monetary Developments in the United States

Perhaps the most worthwhile perspective from which to review post-Accord monetary developments in the U.S.A. is in terms of the light they shed on the " new theory of credit control " (1). This doctrine, developed and sponsored by the Federal Reserve Bank of New York in the days when the Treasury still dominated the scene, was later adopted by the Board of Governors of the Federal Reserve. As the official System position at the time of the Accord, it served as a justification for the Federal Reserve's desire to abandon once-and-for-all the wartime pattern of rigidly pegged interest rates. The theory's influence on monetary policy was thus of some significance — certainly such as to warrant a detailed examination now that sufficient time has elapsed to provide a reasonable test period.

Today, it is true, the Federal Reserve does not defend its over-all policy views by deliberate reliance on the ideas of the new

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(1) The new theory, as it has been termed here, is also referred to as the " Roosa doctrine " and the " availability doctrine ". R. Roosa, " Interest Rates and the Central Bank ", in *Money, Trade and Economic Growth: Essays in Honor of John Henry William*, Macmillan, 1951, is perhaps the single most important source, though the articles by A. Sproul (" Changing Concepts of Central Banking ") and H. Ellis (" The Rediscovery of Money ") in the same volume are also of interest. In addition, some of the ideas of this doctrine can be found in the Federal Reserve statements presented at the Patman Hearings (known officially as *Monetary Policy and the Management of the Public Debt*: Their Role in Achieving Price Stability and High-Level Employment, Joint Committee on the Economic Report, 82nd Congress, 2nd Session, Washington, U. S., Government Printing Office, 1952, 4 Parts). By far the best short statement of the new theory, together with a description of the context in which it developed, is to be found in J. Tobin, " Monetary Policy and the Management of the Public Debt: The Patman Inquiry ", *Review of Economics and Statistics*, V, XXXV, May 1953. See also John H. Kareken, " Lenders' Preferences, Credit Rationing and the Effectiveness of Monetary Policy ", in *The Review of Economics and Statistics*, No. 3, August 1957, p. 292.

theory. System spokesmen no longer publicly recognize the need to limit the magnitude of interest rate fluctuations; nor do they talk, as they did before the Accord, of their ability to control inflationary pressures by means of only very modest increases in yields. Perhaps it was to be expected that the authorities, when more comfortable in the freedom granted them by the Accord and when no longer surrounded by a hostile political administration, would move toward a more traditional defense of the classical techniques of monetary control. But this change in attitude should not be allowed to obscure the fact that the basic issue with which the new theory dealt — namely, the relationship between the existence of a large outstanding public debt and the use of traditional monetary policy — continues in the present to be of considerable relevance. Indeed, the aim of this essay is to show that the legacy of the war years (a large national debt) remains as an obstacle to the effective working of such a policy.

The New Theory

The substance of the new theory of credit control derived directly from the awkwardness of the position in which the Federal Reserve found itself at the close of World War II. Nearly everyone thought at that time that private lenders (in particular, those of the institutional sort), having been forced by wartime circumstances to take on disproportionately large quantities of government securities, were anxious to achieve a better balance in their portfolios. It was felt that they would certainly attempt to sell Treasury securities and acquire private obligations with the proceeds as soon as private credit demand revived sufficiently. For the authorities to hold to a rigid structure of interest rates in such a situation would mean passing the initiative for open-market operations into the hands of private lenders, with inflationary pressures as a possible consequence. Quite understandably, the Federal Reserve was reluctant to follow such a course.

Yet, what of the alternative? Allowing the markets for private and public funds to find their respective equilibrium levels, with little or no buying support, might well under then prevailing conditions have resulted in very considerable increases in yields. This, apparently, is what Treasury officials feared, though not

because they thought of interest charges as an important determinant of investment spending. Of course, they stressed continuously the meaning of higher rates for the cost of debt service. But more basic to their fear was the belief that any modification of System support operations would precipitate a wave of speculative selling of government securities; small System-induced increases in yields would, it was thought, cumulate into much larger changes, with the result that both borrowers' and lenders' expectations would be adversely affected. It was, however, precisely this interpretation of the likely effect of a break with wartime policy that proponents of the new theory denied. In their view, very small increases in yields on Treasury issues would actually check any movement out of these securities and into private debt claims. There would therefore be no need for the authorities to buy heavily in defense of any particular (i.e., slightly higher) Treasury yield curve, so that an expansion of the money supply could be prevented by an upward adjustment of interest rates so small as to give the Treasury no cause for alarm.

The new theory's version of the probable outcome of an abandonment of market support rested on some specific notions (old, as well as new) about 1) the structure of the various loanable funds markets, and 2) the nature of institutional lenders' asset preferences. For example, it was suggested that since interest rates in certain markets (notably, for bank loans) are administered, and therefore less flexible than market determined rates, any increase in yields on government securities would turn relative yields against an expansion of private debt claims subject to administered prices.

This, however, was not the most interesting argument adduced in support of the contention that modest increases in yields on government securities would restrain lenders from switching into private obligations. Rather, the novelty of the new theory lay in the assertion that classical monetary measures are effective because of their influence on lenders, not borrowers. It was this emphasis that provided a basis for the belief that lenders would hold onto their Treasury issues even if relative yields turned increasingly in favor of other types of debt, or if other market pressures dictated an expansion of private debt holdings — which, of course, was just the sort of situation that could be expected to prevail in the post-war period. The emphasis took the form of specific asset preference hypotheses, although reference was also made to changes

in the structure of the loanable funds market: specifically, the growth of the public debt and the increase in contractual saving, as, for example, life insurance. Yet, it does seem that the latter are important only insofar as they increase the actual significance of the asset preference hypotheses. That is to say, the growth of the public debt is meaningful in this context because of the assumptions made by the proponents of the new theory concerning the sensitivity of various types of lenders to fluctuations in the capital values of government securities in their portfolios (see below); similarly, the importance of the increase in "institutionalized saving" stems from the alleged investment behavior of financial intermediaries like life insurance companies.

One asset preference hypothesis of the new theory was concerned with the behavior of commercial banks. It was suggested that a small increase in yields would force commercial banks to keep what government securities they had because it would — by reducing the market value of such holdings, and, at the same time, creating a feeling of uncertainty as to the course of events — directly and indirectly impair their over-all liquidity positions. That is, following a fall in the prices of Treasury issues, commercial banks would be less able, or less willing to expand their loan portfolios. For nonbank, institutional lenders (especially insurance companies) the argument was somewhat different. Such lenders do not have the same kind of liquidity needs as commercial banks. But they do have to keep a sharp eye on the default-risk character of their investments. Thus, so the hypothesis runs, Treasury obligations are particularly attractive for financial intermediaries, provided only that they pay a sufficiently high return to allow such lenders to meet their own (contractually determined) obligations. This is why, according to the new theory, nonbank lenders might reasonably be expected to tolerate an increasing spread between yields on private and public securities as yields generally rise. As a final example of the new theory's asset preference hypotheses, there is the so-called "pinned-in" effect. It is an argument based on a supposed irrational aversion — which is to say, an aversion resting in turn on considerations other than relative prices — of institutional lenders to taking capital losses. Given this fear, small increases in yields would "pin" securities into institutional portfolios, thus preventing lenders from expanding their

private debt holdings at the expense of their holdings of Treasury obligations.

The brief summary given here, while not doing anything like full justice to the richness of detail in the arguments of the new theory, does nevertheless indicate the type of thinking which underlays its central thesis: that the Federal Reserve could, using classical techniques, successfully fulfill its traditional function without creating instability in the market for government securities. In fact, the specific hypotheses cited are not so important as such; they should rather be taken simply as illustrations of the primary emphasis of the doctrine. But, now, having outlined the theory, we can turn to an examination of post-Accord developments.

The Post-Accord Experience

Even though it is impossible in this small space to trace out step-by-step the policy maneuvers of the Federal Reserve, it is essential that we have in mind some idea of actual credit conditions during the post-Accord period. Fortunately, all that is really needed is a brief summary aimed simply at marking off in a general way the "easy" from the "tight money" intervals; and, because of the particular phrasing of the arguments of the new theory, the most important criterion for distinguishing the different periods is the Federal Reserve's own definition of its policies. Nor is it possible, considering the same space limitations and the inadequacy of data, to pursue in detail the specific lines of argument set out above, or to examine the activities of all types of lenders; our attention must instead be confined to the over-all behavior of the more important classes of lenders. As was suggested above, however, the central thesis of the doctrine under review here is from the policy viewpoint more significant than the individual hypotheses. And the question of how lenders actually handled their holdings of government securities can be appraised satisfactorily even though there is not available sufficient information to examine specific hypotheses (as, for example, the "pinned-in" effect).

In attempting to establish test periods, it is doubtless best to ignore the four months immediately after the Accord; dominated by very special circumstances, this interval was clearly unique. And, as it happens, the year starting July 1951 can also be ruled

out. (2). This was a period of growing credit ease, during which the System followed a policy of "neutrality" rather than "restraint". For the entire year, the modest reduction in Federal Reserve holdings of Treasury securities affected was not sufficient to offset the gain in bank reserves resulting from changes in the other determinants of reserves (Table 1) (3). Then, too, the avail-

TABLE I

CHANGES IN SELECTED FACTORS AFFECTING BANK RESERVES BY SIX MONTH INTERVALS: JUNE 1951-DECEMBER 1956
(in billions of dollars) (1)

	Federal Reserve's Government Securities Portfolio	Monetary Gold Stock	Currency in Circulation
July-December 1951	.82	.94	1.40
January-June 1952	— .90	.65	— .18
July-December 1952	1.79	— .16	1.41
January-June 1953	.05	— .72	— .31
July-December 1953	1.17	— .43	.66
January-June 1954	— .88	— .10	— .86
July-December 1954	— .11	— .21	.59
January-June 1955	— 1.33	— .04	— .28
July-December 1955	1.18	.01	.93
January-June 1956	—1.03	.11	— .44
July-December 1956	1.16	.15	1.08

(1) *Source*: *Federal Reserve Bulletins*. Signs indicate actual movements, not the influence on bank reserves.

able evidence suggests that the inflationary pressures which developed at the outbreak of the Korean War had moderated considerably by mid-1951 (4). With the reduced demand for private credit,

(2) Because of limitations on data, "mid-year" and "year-end" dates are used exclusively to mark off the various periods. This practice, while not strictly accurate, really involves no substantial distortion.

For additional background information on the post-Accord period, see the articles on credit conditions published periodically in the *Federal Reserve Bulletin*, and, for the relevant years, the "Economic Report of the President".

(3) All references such as this one in ( ) are to the Tables in the text.

(4) See, for example, H. G. HICKMAN, "The Korean War and United States Economic Activity", Occasional Paper 49, National Bureau of Economic Research.

the upward adjustment in interest rates was less pronounced than in the preceding year.

After mid-1952, however, conditions in the credit markets grew progressively tighter. With the settlement of the steel strike in the first half of 1952, industrial activity picked up sharply; spurred by increased consumer expenditures (particularly on durable goods), by a boom in industrial and residential construction, and by an inventory build-up of considerable proportions, the advance continued through mid-1953. Against this background, the authorities moved increasingly in the direction of outright restraint, as indeed the behavior of interest rates indicates. Yields on government securities rose more over the last half of 1952 than in the comparable period one year earlier, though, on the other hand, private yields increased less. During the following six months, however, the entire structure of rates moved up much more sharply than in like intervals in previous years (Table II). System open-market operations were more restrictive in the months after July

TABLE II

PERCENTAGE CHANGES IN INTEREST RATES FOR SELECTED SECURITIES BY SIX MONTH INTERVALS: JUNE 1951-DECEMBER 1956 (1)

	U. S. Government securities				Municipals (4)	Corporate Securities	Commercial Paper (4-6 months)	Average rate on Bank Loans to Business (5)
	Bills (new issues)	Certificates 9-12 months (2)	Notes and Bonds (3-5 years)	Bonds (over 12 years) (3)				
July-December 1951 .	15.3	— 1.1	4.5	1.9	— 5.4	3.4	4.3	6.5
January-June 1952 . .	— 1.7	— 1.7	— 2.4	— 3.3	——	— 3.0	——	7.5
July-December 1952 .	24.7	16.7	12.7	5.4	14.3	0.3	——	——
January-June 1953 . .	5.2	21.2	27.0	12.4	24.6	4.9	15.0	6.3
July-December 1953 .	—26.9	—34.6	—20.5	— 9.7	—13.4	— 1.6	18.2	— 0.8
January-June 1954 . .	—60.1	—52.8	—19.4	— 9.0	— 4.2	— 6.7	—30.7	— 4.3
July-December 1954 .	80.0	44.7	8.4	1.2	— 3.2	— 1.1	—16.0	— 1.4
January-June 1955 . .	22.2	55.5	24.7	7.4	3.8	1.7	52.7	——
July-December 1955 .	79.0	49.7	16.9	4.3	8.4	3.1	49.5	10.4
January-June 1956 . .	1.6	5.1	1.4	——	——	3.6	13.5	5.3
July-December 1956 .	27.6	23.8	27.1	27.1	31.8	16.5	7.4	5.8

(1) *Source*: *Federal Reserve Bulletins*.
(2) Also includes notes and bonds in this maturity range.
(3) Prior to December 1951, the figure is for Treasury bonds over 15 years to maturity.
(4) Includes Aa and A rated bonds, as well as Aaa and Baa
(5) The average is for 19 cities, as reported by the Federal Reserve.

1952 than in the year before, since (with the higher level of credit demand) total purchases failed to fully offset even the influence of movements in the gold stock and currency-in-circulation.

Moreover, other steps were taken to put pressure on interest rates. In October 1952 the Federal Reserve stopped direct, continuous support of Treasury refinancing operations. Then, in mid-January 1953, the rediscount rate was increased from 1¾ to 2 percent; along with this, System spokesmen began to make increasingly clear (publicly) their unhappiness over the high level of member bank borrowing. And, finally, in March 1953 came the much discussed changes in open-market procedure. It was at that time that the "bills only" doctrine — a policy which confined System open-market dealings to the short end of the maturity distribution (Treasury bills) — was first made public. The other modification of open-market working rules, announced at about the same time, was a rewording of the Board of Governors' policy directive to its Open Market Committee. Prior to that time, the directive had read that open-market operations were to be conducted with the aim of "maintain(ing) orderly markets for U.S. Government securities"; thereafter, such operations were to be used only to "correct (any) disorderly situation in the Government securities market". All of these developments were, to say the least, unsettling.

In May-June the authorities executed an abrupt about-face, in large part because of the crisis-like situation in the securities markets. A good share of the responsibility for this development in the markets, which really got underway in April, lies with the Treasury rather than the Federal Reserve; for, one of the main causes of the extreme unsettledness of those months was the April long-term financing, the terms of which were set by the Treasury, not the System. In any event, the reversal of policy was well advised, since signs of recession began to appear in the economy. Those factors responsible for the high level of activity over the previous year (expenditure on consumer durables, business inventories, etc.) underwent a significant decline in the third quarter of 1953, and did not really recover until twelve months later; only residential and business construction continued apace after mid-1953. It is true that Federal Reserve open-market operations during the year and a half after June 1953 were again aimed only at offsetting the influence of other factors affecting bank reserves, but, of course, until October

1954 they were conducted against the background of a considerably reduced demand for credit. Furthermore, reserve requirements were lowered in July 1953 and again in July 1954, while the rediscount rate was dropped ¼ percent in February 1954 and again by the same amount (to a level of 1½ percent) two months later. With all these changes, the rate structure moved steadily down from the July 1953 high; it was not until mid-1954 that short-term rates began to rise again, nor until the fourth quarter of 1954 that the entire rate structure began to advance.

When in the fourth quarter of 1954 the economy showed signs of revival, the monetary authorities moved first to a "neutralist" policy. By the second quarter of the following year, however, it had become one of outright restraint. And, though there have been brief variations to compensate for temporary weaknesses in the economy, such has been the policy right down to the present. Over the period from January 1955 through December 1956, open-market operations more than offset other influences on bank reserves, so that on balance a modest restrictive effect was achieved. During this same interval the rediscount rate was raised six successive times, from a level of 1½ percent in March 1955 to 3 percent in August 1956. Pressing against these restraining influences, an exceedingly high level of private credit demand forced interest rates generally to new post-war highs; yields advanced very rapidly all through 1955, and again over the last six months of 1956.

Summarizing, we have then two distinct instances of monetary restraint which can serve as test periods for the argument of the new theory: the year following June 1952 (but especially the first six months of 1953), and the two year interval, January 1955 through December 1956. In both periods the Federal Reserve was free to influence interest rates as it saw fit, as is indicated by the increases in yields which in one way or another it forced on the market. It would seem therefore that the preconditions for the type of behavior which proponents of the new theory had in mind were in fact fulfilled during these periods. Yet, as the subsequent review will show, lenders did not behave in accordance with the pattern outlined in the new theory.

First of all, there is on the face of things little in the activities of life insurance companies and mutual savings banks which supports the new theory's view. For example, over the last half of 1952 and the first half of 1953, life insurance companies reduced

their (aggregate) holdings of Treasury issues by $.28 billion (2.7 percent); and, in the two years after December 1954, they accomplished another reduction, this time of roughly $1.5 billion (16.5 percent) (Table III). Only once, over the first six months of 1955, did they

TABLE III

LIFE INSURANCE COMPANIES' TOTAL ASSETS (in billions of dollars) AND TYPES OF ASSETS AS A PERCENT OF TOTAL ASSETS BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956 (1)

End of Month	Total Assets	U. S. Government Securities	Other Government Securities (2)	Total Business Securities (3)	Mortgages	Loans and Other Investments
December 1949 .	$ 59.56	25.6%	4.2%	38.9%	21.6%	9.6%
June 1950 . . .	61.68	24.0	4.1	39.1	23.9	9.8
December 1950 .	63.89	20.9	4.0	39.5	25.2	10.1
June 1951 . . .	66.05	18.0	4.1	40.5	27.3	10.1
December 1951 .	67.98	16.1	3.9	41.2	28.4	10.4
June 1952 . . .	70.33	14.7	3.6	42.5	28.9	10.3
December 1952 .	73.05	14.0	3.4	43.0	29.1	10.5
June 1953 . . .	75.40	13.3	3.2	43.8	29.5	10.2
December 1953 .	78.20	12.5	3.3	44.0	29.8	10.5
June 1954 . . .	80.98	11.5	3.6	44.1	30.1	10.6
December 1954 .	84.07	10.7	3.6	43.8	30.8	11.0
June 1955 . . .	86.97	10.4	3.5	43.5	31.6	11.0
December 1955 .	90.22	9.5	3.4	43.2	32.6	11.3
June 1956 . . .	92.88	8.6	3.7	40.0	33.7	11.1
December 1956 .	95.82	7.9	3.6	41.0	36.4	11.3

(1) *Source*: *Federal Reserve Bulletins*.
(2) U. S. State and Local and Foreign Issues.
(3) Includes Bonds and Stocks.

in the face of rising interest rates increase their holdings of government securities, and then it was by a very small amount — $.03 billion or .3 percent. Moreover, as Table III indicates, life insurance companies' aggregate portfolio of Treasury obligations declined in relative importance during each of the periods of credit restraint.

The story is substantially the same for mutual savings banks. For, while they did in the aggregate increase their total holdings of government securities by a very small amount over the first six months of 1953 (at a time when interest rates were rising sharply),

they reduced their total holdings in every other period of credit tightness. And, again, such holdings declined steadily in relative importance through the tight money intervals (Table IV).

TABLE IV

MUTUAL SAVINGS BANKS' TOTAL SELECTED ASSETS (in billions of dollars) AND TYPES OF ASSETS AS A PERCENT OF TOTAL ASSETS BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956 (1)

End of Month	Total of Selected Assets	Total Loans	Total U. S. Government Securities	Total Other Securities	Total Cash Assets
December 1949	$ 21.27	30.9%	53.7%	11.2%	4.1%
June 1950	22.02	32.7	52.5	11.0	3.8
December 1950	22.15	36.7	49.1	10.6	3.6
June 1951	22.55	40.0	45.3	11.0	3.8
December 1951	23.15	42.6	42.4	11.1	3.8
June 1952	24.07	43.7	39.9	12.4	4.0
December 1952	24.92	45.5	37.8	13.0	3.7
June 1953	25.99	46.5	36.4	13.7	3.3
December 1953	26.79	48.3	34.3	13.8	3.7
June 1954	27.95	49.7	32.3	14.5	3.5
December 1954	28.90	51.9	30.3	14.3	3.6
June 1955	29.98	53.9	29.0	13.8	3.3
December 1955	30.87	55.6	27.4	12.9	3.2
June 1956	31.98	58.3	26.0	12.9	2.9
December 1956	32.86	60.2	24.2	12.6	2.8

(1) *Source*: *Federal Reserve Bulletins*.

A glance at the record for the entire post-Accord period shows, however, that life insurance companies and savings banks did not confine their attempts to reduce their portfolios of Treasury issues to times of monetary restraint, but sold on balance during intervals of credit ease as well. This suggests that insofar as the argument of the new theory is concerned, perhaps the rate at which selling took place is more to the point than simply the changes in dollar holdings; that is, it is possible to argue that there is no difference between 1) a situation in which holdings of government securities rise in periods of credit restraint and fall in periods of credit ease, and 2) a situation in which the rate of decline in holdings falls off

in periods of restraint. And, in fact, the decline in insurance companies' and mutual savings banks' portfolios of government securities over the year following June 1952 was less (in absolute and percentage terms) than in the previous like intervals or in the subsequent period of credit ease. But selling during the final period of restraint (January 1955-December 1956) was generally heavier than at any time after mid-1952 — which indicates that, in this interval at least, higher yields on Treasury obligations did not prevent these institutions from taking advantage of increased opportunity for acquiring additional private debt claims. Here again, then, the evidence seems to offer no unambiguous confirmation of the new theory's argument.

Commercial banks, as a group, behaved somewhat differently than life insurance companies and mutual savings banks during the post-Accord period, though there is in this difference even less support for the thesis under review here. The former did, it is true, show the same marked preference for private obligations over the entire interval since the Accord; loans, as a percent of total loans and investments, increased from roughly 44 percent in mid-1951 to about 55 percent at the end of 1956, while holdings of government securities, approximately 46 percent of total loans and investments in mid-1951, comprised only about 35 percent of this total at the end of 1956 (5) (Table V). Interestingly enough, however, what interruptions there were in this over-all pattern occurred during periods when private credit demand was slack. That is, commercial banks in the aggregate were net sellers of government securities only when the demand for loans was high.

Over the first half of 1953, at the same time that interest rates were climbing to new highs, all commercial banks reduced their holdings of government securities by approximately $4.7 billion (7.7 percent). Again, between the end of December 1954 and the end of December 1956, holdings fell by roughly $10.7 billion (15.3 percent). In only two instances were System moves in the direction of credit restraint accompanied by increases in total commercial bank holdings of Treasury issues: over the last six months of 1952, while the authorities were really only in the process of

(5) At the end of 1945, loans were approximately 21 percent of total loans and investments for all commercial banks; government securities, on the other hand, made up roughly 73 percent of the total.

switching to a tight money policy, total holdings rose $2.1 billion (3.5 percent); and, over the last six months of 1956, total holdings again increased, this time by $1.7 billion (3 percent). Neither increase was sufficient, however, to prevent an over-all decline in each of the respective periods of credit restraint. On the other hand, commercial banks were actually net purchasers of government securities over the last half of 1951; total holdings rose $3.2

TABLE V

LOANS AND INVESTMENTS OF ALL COMMERCIAL BANKS: BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956
(in billions of dollars) (1)

End of Month	Total Loans and Investments	Total Loans	Government securities				Other Securities
			Total	Bills	Certificates	Notes and Bonds	
December 1949 *	$ 120.20	$ 67.01	$ 42.81	$ 3.86	$ 12.69	$ 50.35	$ 10.23
June 1950 *	121.39	44.63	65.56	4.03	6.20	55.37	11.20
December 1950	126.68	52.25	62.03	4.24	1.97	55.81	12.40
June 1951 *	125.72	54.71	58.33	4.00	3.16	51.20	12.68
December 1951	132.61	57.75	61.52	7.34	7.66	46.51	13.34
June 1952	134.44	59.23	61.18	6.24	7.80	47.11	14.03
December 1952	141.62	64.16	63.32	7.76	5.58	49.96	14.14
June 1953	137.96	65.03	58.64	5.05	5.09	48.38	14.28
December 1953	145.69	67.59	63.43	5.00	10.24	48.15	14.67
June 1954	146.83	67.34	63.51	4.70	5.57	53.20	15.54
December 1954	155.92	70.62	68.98	5.07	5.36	58.53	16.32
June 1955	155.26	75.18	63.27	3.22	1.71	58.33	16.81
December 1955	160.88	82.60	61.59	4.22	2.32	55.04	16.69
June 1956	160.01	86.89	56.62	2.82	1.25	52.54	16.50
December 1956	165.69	91.24	58.55	5.92	2.00	50.62	16.15

(1) *Source*: *Federal Reserve Bulletins*.
* Data for these dates are estimated.

billion (or about 5.8 percent). Then, between mid-1953 and the end of 1954, when loan demand was again slack, their aggregate portfolio of government securities increased more than $10 billion, so that by the end of 1954 total holdings were larger than at any time since mid-1947.

It should also be noted that commercial banks as a group did not in the period under review make a consistent attempt to

strengthen their liquidity position in other ways to compensate for the over-all shift from government securities to private loans. For, while they ran down their excess reserves and increased their average indebtedness to the System during intervals of credit restraint, they did not vary their holdings of short-term issues (bills and certificates) so as to offset the reductions in total holdings of Treasury securities (Table V). Nor did they in each instance, when private loan demand was high, attempt to increase their holdings of government securities maturing in less than one year (Table VI).

TABLE VI

INDICES OF COMMERCIAL BANK LIQUIDITY FOR ALL COMMERCIAL BANKS BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956 (1)

End of Month	Ratio of Total Holdings Government Securities Maturing in Less Than One Year to Total Loans and Investments	Ratio of Total Holdings Government Securities Maturing in Less Than One Year to Total Demand and Inter-Bank Deposits
December 1949	20.0%	22.1%
June 1950	13.2	15.0
December 1950	16.4	17.5
June 1951	8.1	8.9
December 1951	10.7	11.1
June 1952	9.5	10.4
December 1952	12.0	12.9
June 1953	14.2	15.9
December 1953	17.2	18.9
June 1954	12.1	13.8
December 1954	10.1	11.4
June 1955	5.1	5.3
December 1955	4.8	5.4
June 1956	4.6	5.4
December 1956	7.0	8.2

(1) *Source*: *Federal Reserve Bulletins.*

Thus, there is not in the aggregate behavior of commercial banks any appearance of consistent support for the new theory. One can of course find isolated instances where changes in commercial banks' portfolios did conform to its predictions. Overall, however, these institutions do not seem to have been deterred by

increases in interest rates from expanding their portfolios of private obligations at the expense of their holdings of Treasury issues. In fact, as was indicated above, they showed interest in the latter only during periods of credit ease, that is, when yields on government securities were falling (6). Obviously, one could argue that commercial banks — or, for that matter, life insurance companies and savings banks as well — were actually deterred from reducing their holdings of government securities by increases in interest rates, but that other forces were sufficiently strong so as to dominate the influence of changes in yields. This is possible, though we will never know. Also, it is to be doubted that such an argument as this salvages much of the new theory — insofar, that is, as its implications for policy are concerned.

The belief, so widespread in the immediate post-war, that institutional lenders were unhappy holding such large quantities of government securities (given the then current structure of interest rates) is thus seen to have been quite an accurate prediction. For the increase in the relative importance of private obligations in institutional portfolios has been almost uninterrupted over the entire periods since the end of World War II, and has been carried to the point where now private debt holdings of commercial banks, life insurance companies and mutual savings banks are actually slightly more important relatively than before the war. In part, this switch was effected by the simple expedient of using new funds exclusively for purchasing private debt claims; but, as the previous discussion indicated, there was also a considerable amount of selling of government securities in an attempt to speed up the conversion of institutional portfolios to their pre-war composition. Of course, in the pre-Accord days, while the authorities were still supporting the market for Treasury issues (particularly long-term obligations) within fairly narrow limits, even heavy selling could

(6) There is in the present tax law, as it applies to commercial banks, a partial explanation for this pattern. These banks, unlike industrial firms, are allowed to deduct in full net capital losses from income in determining taxable income; and, in addition, they are allowed to pay the usual reduced capital gains rate on net capital gains. These provisions provide an incentive for switching between comparable assets during periods of high interest rates. More important, they make the prospect of a capital loss (as the " price " of a switch from securities to loans) much less of an inhibiting factor. It is also possible that general switching for tax purposes, insofar as it gives rise to a thicker market, makes it easier for banks wanting to make loans to find buyers for their securities.

not be expected to influence the level of yields very much. But more interesting is the observation that even after the Accord, when automatic System support could no longer be counted on, the liquidation of portfolios by institutional lenders was still remarkably orderly. True, fluctuations in interest rates were rather considerable by pre-Accord standards; yet, only once (April-May 1953) was there a real crisis in the market, and this was not so much the fault of the Federal Reserve as the Treasury. It is in this very limited sense that the most general implication of the new theory has been born out by post-Accord developments.

It is to be doubted that this interpretation means much (if anything) as far as the new theory itself is concerned, though, of course, the fact that the market was kept orderly argues well for the Federal Reserve in its application of monetary restraint. The point is that the specific arguments on which the new theory's prediction was based have not been so kindly treated by post-Accord developments. Any explanation of the fact that the System was able to withdraw its support from the market for government securities without producing intolerable instability must be rooted more in the behavior of non-institutional lenders — an element in the picture quite unnoticed by proponents of the new theory — than in the hypotheses outlined above. As Table VII shows, non-financial lenders' holdings of marketable government securities increased approximately $22 billion (nearly 33 percent) between mid-1951 and the end of 1956 (7). Furthermore, the sharpest increases (absolutely and as a percent) were recorded in periods of credit restraint. Only once during a period of rising interest rates (the first half of 1956) did total holdings decline; and then there was an equivalent increase in the following six months. The other break in this pattern of increase in non-financial holdings of Treasury marketable issues took place in the first six months of 1954, at a time when interest rates were declining; but here too there was an offsetting increase in the following half-year interval.

(7) This group of lenders, known in the Federal Reserve statistics as "others", is dominated by the behavior of the non-financial sector of the economy, particularly individuals and non-financial corporations. No separate figures are published on the "dealer and broker" component of this category, but Savings and Loan Associations' holdings, which are also included, are given separately; such holdings increased at a fairly even pace from about $1.5 billion in December 1949 to roughly $2.8 billion in December 1956.

It is also of some interest to note the changes by "type" in private lenders' holdings of government securities which have taken place, since, presumably, they represent the growing influence of

TABLE VII

OTHERS' * HOLDINGS OF MARKETABLE PUBLIC DEBT
BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956
(in billions of dollars) (1)

End of Month	Total	Bills	Certif-icates	Notes	Bonds
December 1949	41.8	3.9	11.0	1.8	25.0
June 1950	43.7	5.8	7.3	5.1	25.3
December 1950	44.4	7.9	1.4	10.0	24.9
June 1951	45.6	8.4	3.2	8.8	22.1
December 1951	46.7	10.1	8.8	2.5	22.1
June 1952	47.4	10.3	9.1	2.6	21.6
December 1952	51.0	12.5	6.4	5.0	23.1
June 1953	53.7	13.2	6.1	5.7	24.9
December 1953	55.2	11.4	10.5	5.8	23.7
June 1954	52.1	12.2	6.5	6.5	23.0
December 1954	55.2	12.1	9.5	7.3	22.5
June 1955	59.3	15.2	4.0	12.5	23.9
December 1955	67.7	16.0	7.6	14.7	25.7
June 1956	64.9	17.1	3.9	13.4	26.9
December 1956	67.7	17.7	6.0	13.4	27.0

* Includes non-financial corporations (*i.e.*, other than banks and insurance companies), individuals, corporate pension funds, non-profit institutions, dealers and brokers, and savings and loan associations.

(1) *Source*: *Federal Reserve Bulletins*.

non-financial corporations in the market for such issues (8). In the interval since the Accord, holdings of short-term obligations have increased more relatively than holdings of longer-term issues; in particular, holdings of bills seem to have been more sensitive to changes in the level of interest rates than were holdings of other

(8) No separate figures are published on holdings, by "type", of government securities for non-financial corporations. The opinion seems to be, however, that business firms have of late become increasingly active in the market for short-term government securities (especially bills). For a discussion of the growing influence of non-financial corporations, see HYMAN P. MINSKY, "Central Banking and Money Market Changes", *Quarterly Journal of Economics*, V. LXXI, May 1957, pp. 171-88.

types of government securities. This may well reflect the willingness of non-financial corporations to switch between bills and cash, depending on the level of the bill rate.

TABLE VIII

FEDERAL RESERVE SYSTEM'S HOLDINGS OF GOVERNMENT SECURITIES BY SIX MONTH INTERVALS: DECEMBER 1949-DECEMBER 1956

(in billions of dollars) (1)

End of Month	Total	Bills	Certif-icates	Notes	Bonds
December 1949	$ 18.9	$ 4.8	$ 6.3	$ .6	$ 7.2
June 1950	18.3	3.9	5.4	3.5	5.6
December 1950	20.8	1.3	2.3	12.5	4.6
June 1951	22.9	.5	3.2	12.4	6.8
December 1951	23.8	.6	12.8	5.1	5.3
June 1952	22.9	.4	11.8	5.6	4.4
December 1952	24.7	1.3	5.1	13.8	4.5
June 1953	24.7	1.5	5.0	13.8	4.5
December 1953	25.9	3.0	6.0	13.3	3.7
June 1954	25.0	2.3	6.6	13.0	3.1
December 1954	24.9	2.2	13.9	6.0	2.8
June 1955	23.6	.9	8.3	11.6	2.8
December 1955	24.8	1.7	6.0	14.3	2.8
June 1956	23.8	.9	10.9	9.2	2.8
December 1956	24.9	1.9	11.0	9.2	2.8

(1) *Source*: *Federal Reserve Bulletins.*

The Significance of Post-Accord Developments

It does seem, judging from the information presented here, that it was the willingness of non-financial lenders to take up large quantities of government securities at only slightly higher interest rates which, more than anything else, kept rates from rising more than they did. This, of course, is not to deny that there were other influences. The simple passage of time sapped much of the force from the dilemma in which the monetary authorities found themselves in the immediate post-war. By the time of the Accord, institutional portfolios were much more nearly in balance than they were in mid-1945. Then, too, the Accord represented no really sharp break with the past, since lenders were only gradually

reintroduced to the idea of flexible interest rates. Nor did the authorities leave the post-Accord market completely to its own devices. Treasury debt and Trust Account operations doubtless eased market pressures some, if only on a seasonal basis. For, while the total debt did increase from about $257 billion in December 1950 to roughly $277 billion six years later, net reductions in the total were recorded for the second quarter of 1953, the first half of 1955, and the year 1956 as a whole. Moreover, the Federal Reserve, besides offsetting seasonal pressures regularly, increased its own holdings of government securities modestly in the period from the Accord to the end of 1956 (9).

Without considerable buying support from the non-financial sector, however, the System would probably have had to either take up much larger quantities of Treasury issues than was actually the case, which would have meant a further expansion of the money supply, or else allow interest rates to rise even more than they did, which no doubt it was also reluctant to do. Admittedly, this interpretation does assume a considerable interest-inelasticity in the private demand for loanable funds, as well as a willingness on the part of institutional lenders to continue to trade public for private obligations even as yields on the former rise appreciably. But then there have been present throughout the post-war period strong pressures — in addition, that is, to rate differentials — on commercial banks and financial intermediaries to expand their portfolios of private debt claims. And the evidence of the post-Accord years suggests that borrowers, with the possible exception of state and local governments, are not much (if at all) influenced by changes in interest rates *per se*. This, it would seem, is in accord with previous experience, and is perhaps one of the reasons for the new

(9) System holdings of government securities increased $2 billion between the end of March 1951 and the end of December 1956. Because of the strong seasonal influence in open-market operations, however, this figure probably overstates some the effect of such operations. When like dates are used — as, say, from July 1951 through June 1956, or from January 1952 through December 1956 — the increase is seen to be about $.8-.9 billion. (Table VIII). Of course, Federal Reserve holdings rose dramatically in the first three months of 1951 ($1.1 billion) because of the unsettled conditions which prevailed immediately before the Accord; and, no doubt, some sales of government securities during this period were in anticipation of actual acquisition of private obligations, so that banks probably had available during the post-Accord period more reserves (supplied by System purchases) than the change in the System's portfolio would suggest.

theory's emphasis on the significance of market structure and on the behavior of lenders rather than borrowers.

That the behavior of non-financial lenders was neglected as an explanation by the new theory does not mean that the monetary authorities looked upon it as an unfortunate development. Quite the opposite, in fact. They have been content to point out that, because of this willingness of non-financial lenders to hold Treasury securities at interest rates only slightly higher than those which prevailed in pre-Accord years, the expansion of commercial bank loans during periods of credit restraint (at the expense of bank holdings of government securities) has taken place within a constant (nominal) money supply: the presumption being that the Federal Reserve has thus, for whatever reason, been able to hold the line against inflation without precipitating demoralizingly large fluctuations in interest rates. This, however, while in part accurate, is really an overly simple interpretation of post-Accord developments. It does not take into account the unfavorable aspects of the pattern described here; nor does it, in implicitly basing monetary policy on such a pattern, recognize the unhappy consequences which could result from future applications of monetary restraint by classical methods.

If one looks only at changes over time in the nominal money supply, as of late the authorities have tended to do, the fact that the economy has been making more intensive use of the given supply during periods of monetary restraint escapes notice (10). This, of course, is what is involved in the transfer of government securities from institutional lenders generally (but particularly commercial banks) to the non-financial sector during the recent instances of credit tightness. For, while relatively idle balances have been cancelled by non-financial purchases, more active deposits have been created by the ensuing loans made possible by the original sales, with the result that the income-velocity of the money supply has been increased (11).

(10) Even a sympathetic reading of Federal Reserve statements — for example, the "Annual Reports", of either the Board of Governors or the Federal Reserve Bank of New York — will show a lack of concern for this aspect of the problem of monetary control. On this, as well as other issues raised in this section, see W. L. Smith, "On the Effectiveness of Monetary Policy", *American Economic Review*, V. XLVI, September 1956, pp. 588-606.

(11) For evidence on this point, see Smith, *ibid.*, pp. 600-3.

In the same vein, another interesting development is the increasing use dealers in government securities have been making of repurchase agreements with non-financial corporations to carry their inventories (12). To the extent that securities dealers can rely on such an arrangement, commercial bank reserves can be shifted from the support of dealer loans to the support of business loans; and, where banks lend to industrial firms because dealers have already obtained their finance by means of repurchase agreements, an increase in velocity results, since it is unlikely that the velocity of dealer loans is in general greater than the velocity of business loans. The underlying assumption here (which, it seems, has some foundation in fact) is that dealers are for many reasons better able than (say) industrial firms to tap heretofore idle balances. Moreover, if a repurchase agreement is for non-financial corporations a more suitable arrangement than an outright purchase of Treasury issues, as has been suggested, then its widespread use makes possible a larger transfer of government securities (for the same change in interest rates) than would otherwise be the case. This in turn makes room for an additional increase in velocity through the ordinary " switching " process described above.

It should also be pointed out that the use of repurchase agreements, besides tending to increase the effective money supply, may well have an impact on the allocation of loanable funds. In the situation where dealers rely on repurchase agreements with non-financial corporations, firms with good bank connections are in a relatively more favorable position; where this arrangement is not used extensively, firms possessing supplies of liquid assets (Treasury bills) are relatively better off.

An additional change in structure, the growth of the " federal funds " market, should perhaps be commented on here, even though it does not have quite the same significance in the present context as the patterns outlined in the above paragraphs. This market is

(12) See Minsky, *op. cit.*, pp. 176-81, for a description and analysis of this development. A repurchase agreement between a securities dealer and a non-financial corporation is, to quote Professor Minsky, " ... ostensibly a sale of government debt instruments with a tied-in repurchase agreement, (but) in truth the transaction is a collateral loan callable both ways ". The only difference between a repurchase agreement with a non-financial corporation and one with the Federal Reserve — and it is an important difference — is that the latter is always at the initiative of the System, whereas the former can be initiated by the dealer.

simply an arrangement for trading in member bank excess reserves, made possible by the very efficient communications network supplied by the Federal Reserve and by private correspondent relations. Commercial banks with temporary excess reserves are able to lend to those with temporary deficiencies — usually on an unsecured, over-night basis, and at a rate somewhat below the official System discount rate (13).

The increase in the importance of federal funds has resulted in a more efficient use of bank reserves; banks are now able to utilize each other's excess reserves, whereas formerly excess reserves could exist in the banking system and still some loan applicants could go begging. Unlike the process of commercial bank sales of Treasury securities, however, the increased reliance on federal funds shows up directly as an increase in the money supply. Also, its influence is more likely to be of a transitory nature; as soon as the full development of the market is achieved, its significance as a difficulty for the authorities declines. Nevertheless, in a period in which increasing use is being made of federal funds, as, for example, in the interval since the Accord, there is a problem. In part, it is a problem of judgment, if that previous experience would lead the authorities to underestimate the expansionary effect (or underestimate the restrictive effect) of a given increase (decrease) in Federal Reserve credit outstanding. When increasing use is being made of such funds, a purely passive policy (i.e., holding Federal Reserve credit constant) is less restrictive than it would otherwise be.

Behavior such as that described here, when taken as a means of expanding the effective money supply, raises a question about the degree of restraint actually achieved by the authorities in the tight money periods since the Accord. It is clear that monetary operations have not been as restrictive as a reading of changes in the nominal money supply alone would suggest, though, obviously, this cannot be interpreted as a necessary criticism of the Federal Reserve. It is unlikely that the System has not in its private calculations taken fully into account the influence of velocity changes. Moreover, a case can be made for the view that the close rein kept on the nominal money supply by the authorities during

(13) Minsky, *ibid.*, pp. 173-5.

the post-Accord intervals of expanding business activity would have been unduly severe were it not for the offsetting increases in velocity. Certainly this would be the opinion of those who (for whatever reason, some of which are discussed below) believe an aggressive monetary policy to be a dangerous weapon, or, alternatively, that monetary policy should attempt only a very modest contribution to economic stabilization. It is in fact from just this perspective that the post-Accord operations of the System come off rather well — and not, it should be added, because only little is expected of such activities. That the Federal Reserve has demonstrated a considerable technical skill in reintroducing the money markets to the discomforts of flexible interest rates can scarcely be denied. More importantly, it has all along steered rather a middle-course, thereby avoiding sudden strictures in the market in either direction, while at the same time keeping the over-all liquidity of the economy generally in tune with the needs of the moment.

Yet the actions of the authorities can be praised precisely because they (apparently) did not try to do too much. It is only when classical monetary policy is thought of as a primary (or, indeed, the only) weapon to be used against powerful destabilizing forces that the developments outlined above become more serious in their implications. For they do prompt some considerable doubts about the wisdom of relying solely on quantitative techniques of monetary control, as of late the Federal Reserve has preferred to do. Such measures, by their very nature, aim only at a control of the total nominal money supply; they cannot therefore deal effectively with changes in the rate of spending out of a given supply. Now, probably, there is some sort of institutionally defined upper limit on increases in velocity, particularly in the short-run (14). But even if this is granted, the difficulty is not resolved; for it is not simply a question of squeezing harder on bank reserves by means of (say) open-market operations, thereby offsetting any increases in velocity by holding the effective money supply constant (15). Under

(14) Professor Minsky's argument (*ibid.*, pp. 181-4) is that the high interest rates associated with periods of credit restraint "breed" institutional innovations which serve as mechanisms for increasing velocity even more, in which case the existence of an upper limit on velocity changes, even in the short-run, is less likely.

(15) On this point, see W. L. Smith and R. F. Mikesell, "The Effectiveness of Monetary Policy: The British Experience", *Journal of Political Economy*, V. LXV, February 1957, p. 35. See also, Smith, *op. cit.*, pp. 605-6.

present circumstances, it is altogether likely that real barriers to a quick realization of monetary tightness do in fact exist. The authorities just cannot proceed at a very rapid pace. A restrictionist policy obviously cannot be applied at a rate which will demoralize securities markets; nor can the authorities ignore the possibility that such action will, when it comes with suddenness, produce a greater stringency than is really desired and disrupt economic activity generally. The outcome of this tactic would be a policy which is effective because it is at the same time too effective. This, of course, is a criticism of classical monetary policy which is often made even where the assumption is that restrictive measures will be applied only gradually; it is all the more relevant when the authorities are required to exert considerable pressure in a short space of time.

It would thus seem that the recent structural changes in the money markets (especially the growth of the short-term public debt) have had the effect of weakening the influence of quantitative techniques of monetary control; that is to say, there is now a greater interval between the time when the first move in the direction of monetary restraint is made and the time when the pressure is first really felt. Furthermore, there is the chance (how serious, it is hard to judge) that these changes, in facilitating the extension of the economy's liquidity to support a greater volume of spending, inject a dangerous element of instability into the picture. When the processes described above have gone on for sometime, prompted, that is, by a policy of credit restraint, sudden changes in the demand for liquidity have more far-reaching consequences. The vulnerability of economic units (financial or nonfinancial) to changes in asset values is also increased. And, since the Federal Reserve (qua "lender of last resort") deals directly only with commercial banks, its ability to protect other types of institutions may be too limited to prevent a decline in general economic activity.

There appears then, on the basis of the foregoing, to be good reason for giving serious thought to the possibility of supplementing the classical techniques of monetary control already available with additional selective controls. Unlike the former, selective measures can prevent the financial system from increasing velocity, and thereby reduce the "operational lag" of monetary policy and curb

the above-mentioned tendency to instability (16). An example of this type of control is the so-called " secondary reserve plan," a device much discussed in the early post-war period. As applied to commercial banks, it would involve the imposition of an additional reserve requirement to be held in the form of Treasury obligations; like the present cash requirement, the securities requirement would be variable at the will of the authorities. Such an arrangement would — depending on the level at which the reserve would be set — prevent banks from switching out of government securities in an attempt to expand their loan portfolios. Hence, borrowers having access to finance through commercial banks alone could be prevented from obtaining funds. Moreover, if careful attention were at the same time paid to the behavior of the total money supply, banks would not be able to supply funds by monetizing securities.

The ultimate significance of this policy depends of course on the degree of mobility in the credit markets; that is, other institutions — particularly those possessing government securities and having previously established contacts with the loan markets — could take over the function of tapping idle balances when commercial banks are prevented from doing so. This, however, is not really too imposing a hurdle. If a secondary reserve requirement were to be applied to commercial banks, there is no good reason why it could not be extended to cover financial intermediaries. But, recognizing this additional complication, it is likely that the former remain the most important " middlemen " in the process by which idle funds are tapped; they, after all, are the lenders who have in the past built up their portfolios of Treasury issues during periods of slack loan demand, thus readying themselves for the next period of restraint.

Some portions of the credit markets would, it is true, be left untouched by a secondary reserve plan, even where the requirement is taken as applying broadly. For example, consumer credit companies could, by issuing their own commercial paper, tap the idle balances of industrial corporations. Then, too, by restraining exist-

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(16) For a more detailed discussion of some of the points raised here, see the very interesting article by Ervin Miller, " Monetary Policy in a Changing World ", *Quarterly Journal of Economics*, V. LXX, February 1956, pp. 23-43. See also Alvin H. Hansen, *The American Economy* (McGraw-Hill, 1957), Chapter 3.

ing institutional lenders, one might simply spawn others who would fulfill the same function. For this reason, other selective controls would have to be placed on specific types of credit: in particular, consumer and real estate credit, since these kinds are of such overriding importance today (17). Without going into all of the complexities involved, the point is simply that such an arrangement would curb the motivation to activate idle deposits.

Other benefits would flow from an extension of the authorities power to include the direct measures mentioned here. The reason is simply that selective controls do not require considerable fluctuations in interest rates to be effective. If it could confidently be expected that relatively modest changes in interest rates would provoke sharp reactions among borrowers, there would be no cause for dwelling on this aspect of the problem of quantitative vs. selective controls. But the appearance is that demand in many segments of the total loanable funds market is insensitive to changes in yields (18).

For one thing, with such a large outstanding public debt as exists today, the question of the cost of service charges is indeed relevant. Because it is not always possible politically (as at the present moment) to raise tax rates sufficiently to offset increases in debt costs, other aspects of the total government program will suffer as a result of an increase in interest rates. There is then a problem of income redistribution.

Furthermore, even though the authorities currently pretend to an indifference to the level of interest rates, they are clearly mindful of it (if not for the reason given above). Thus, a downward pressure on the prices of government obligations might well defeat a tight money policy by forcing the System into support of the

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(17) It should be noted that we have in fact had a type of selective control in the mortgage market in this country over the post-Accord period. Since yields on government guaranteed mortgages are set by legislative action, they are less flexible than market-determined rates. This is in part simply due to legislative delays, but it also reflects the feeling, shared by many Congressmen, that such yields should be kept low as a subsidy to low-income house buyers: this, in spite of the fact that in periods of credit restraint no funds are forthcoming for such mortgages. Whatever the reason, this is clearly a form of direct price control.

(18) One of the few areas in which there has been any suggestion of sensitivity to interest rate changes is that of state and local financing, particularly for school construction. From the welfare point of view, this is perhaps a perversity, and one which could be overcome only by direct intervention.

market. Nor is this a fear for the future alone; for, while there is a considerable operational lag in monetary policy, the switching of government securities to the non-financial sector of the economy cannot go on forever. Once non-institutional lenders have run down their idle cash balances, then a failure on the part of the Federal Reserve to buy in the open market will produce large fluctuations in interest rates. Whether or not the authorities will tolerate even greater increases in yields than have so far been experienced is at least open to some doubt, their protestations notwithstanding.

Finally, there is the problem of the influence of changes in capital values, a point which has received a good deal of attention of late (19). It arises now because, as contrasted with say the 19th century, assets of all types are today much more liquid or more easily transferred. From the standpoint of monetary policy, this could be all to the good; the danger is that the magnitude of fluctuations in interest rates required to achieve a given effectiveness in the credit markets will be such as to also have distinctly unfavorable effects on overall expectations. Since the authorities cannot overlook the chance of introducing an even greater instability into the economy by pursuing monetary restraint with classical weapons alone, direct controls (as supplements) become all the more necessary if monetary policy is to be sufficiently meaningful.

It would probably be a mistake to suppose that the authorities are unmindful of these points favoring greater reliance on direct controls; and perhaps in the future, when inflationary pressures are stronger than they have been in the past few years, they will again show a willingness to make us of them. Lately, however, the appearance has been of an increasing reluctance to do so. Not that this is necessarily inappropriate to current conditions, although it does seem somewhat inconsistent when matched up against the ever present preoccupation with the dangers of inflation. Nevertheless, it is really impossible to tell from its public utterances alone the extent to which the System's present desire to rely exclusively on traditional monetary techniques is a thing of principle; all that can be said is that it apparently does not now feel the need for additional powers.

(19) For an interesting perspective on this point, see HANSEN, *op. cit.*, Chapter 3.

True enough, the secondary reserve proposal mentioned above was given Federal Reserve backing in the days when Eccles was Chairman of the Board of Governors. Yet, even then the endorsement was mixed with internal opposition; and when (in 1948) McCabe was made Chairman, official support waned. For sometime now the System has been opposed to the institution of this or similar requirements. Also, the Federal Reserve only just recently came out after long study against the reimposition of consumer credit controls, even on a standby basis. Use was made of this kind of regulation during the Korean War, although the necessary power was granted the authorities before the Accord, at a time, that is, when market pegging operations still stood in the way of a complete utilization of traditional techniques. Even on the question of central bank autonomy, which is not unrelated (in attitude, at least) to the problem of direct controls, the System has in recent years reversed itself. Before the Accord, it favored the establishment of a cabinet-level committee, the purpose of which would have been to coordinate the activities of all federal bodies having anything to do with monetary matters. But, as early as 1952, when the Patman Sub-Committee Hearings were held, the Federal Reserve showed no interest in such a committee.

Before concluding some mention should be made of funding as a technique of monetary control. For the Treasury has attempted over the last few years to utilize it, and it has but recently received quite a bit of attention in the literature (20). Because the process of switching public debt holdings from financial to non-financial lenders is in part made possible by the existence of a large short-term debt, a funding operation could well be of help to the authorities. Yet, the recent experience has been rather disappointing, and it does seem that unless those responsible are equipped with (and use) direct controls as an adjunct to fundings, such will most often be the case. The Treasury did, it is true, manage to increase the average maturity of the marketable debt slightly during the most recent period of credit ease (1953-54). But over the past two and a half years some ground has been lost, so that the average maturity

(20) See especially W. M. Dacey, "The Floating- Debt Problem", *Lloyds Bank Review*, April 1956, and the series of articles by King, Balogh, *et. al.*, in the April through November (1956) issues of *The Banker*.

is now somewhat shorter than in 1952 (21). The ultimate issue is of course that of the cost (in increased interest payments) of funding, and this raises the further question of just when a large-scale funding operation could be undertaken. As the recent behavior of the Treasury (admittedly very sympathetic to this line of attack) shows, it is an unlikely thing to do during periods of credit restraint. Nor does it seem well advised to embark on such a program during a recession or (worse) a depression, if for a different reason; funding would tend to keep long-term rates above what they otherwise be.

Thus, it appears that relatively lengthy interval of stability, accompanied by low interest rates, is required if much is to be accomplished by means of funding operations; and even then the advantages of funding would become available only in subsequent periods of credit restraint. If, however, use were made of direct controls, in which case interest rates would be lower, then funding could more reasonably be attempted as an immediate attack on inflationary pressures.

Conclusion

The intent of the preceding discussion has been to make clear just what the existence of a large public debt means to the monetary authorities. To be sure, the problem is not now the same as in the immediate post-war, though it is no less serious for that. Overriding all else at the close of World War II was the fear that an abandonment of pegging operations would bring on a collapse of the securities markets. In fact, however, while there were some difficult moments, nothing like this came to pass when (in 1951) the final break with wartime policy was made. Still, it is likely that the transition would not have been so smooth, had free markets been imposed sooner. And, more important, the fact that it was possible to return to a more traditional monetary policy without dire consequences cannot be accounted for in terms of the arguments of the new theory. Quite the contrary; the evidence indicates that it has been the willingness of non-financial lenders to hold

(21) See E. L. Dale, Jr., "Managing the U. S. Debt Is Anderson's Big Task", *New York Times*, August 4, 1957, Section 4.

government securities rather than the unwillingness of institutional lenders to part with their portfolios of such issues which has made it possible for the Federal Reserve to avoid large-scale support of the market.

Nor is this all to the good. It has meant that offsetting increases in velocity have accompanied attempts by the authorities at monetary restraint. The significance of the existence of a large public debt lies then in the fact that it has facilitated this expansion of the effective money supply. It has served to reduce whatever effectiveness classical monetary policy had, since the traditional techniques cannot deal with attempts at a more intensive utilization of a given nominal money supply. For this reason, the very existence of a large public debt suggests the need for a far greater reliance on direct methods of monetary control.

The point of all this is that the Federal Reserve itself has, at least in its public pronouncements, been too prone to overlook the shortcomings of classical monetary policy. No other interpretation can reasonably be put on its refusal to seek additional powers. There obviously is nothing necessarily inappropriate in this attitude, provided only that the limitations of such a program are kept constantly in mind: that is, if monetary policy is treated as an auxiliary weapon, the main reliance being placed on fiscal measures. The cause for alarm therefore is that the Accord itself, often judged to be the vindication of traditional policy, will continue to be misinterpreted, and that we will try to pile on more weight than the camel can bear.

Minneapolis JOHN H. KAREKEN

The Future of Italy's Steel Industry

On February 10, 1958, all remaining tariffs protecting Italian steel products against imports from other countries of the European Iron and Steel Community (E.C.S.C.) (1) will be abolished. There is naturally a great deal of heart-searching among Italian experts as to the ability of the relatively young Italian steel industry to withstand the full force of competition from the other members of the Community, and particularly Germany. The present moment, therefore, offers a suitable opportunity to take stock of the progress so far achieved by that industry and to attempt a cautious assessment of its prospects during the possibly testing period of the next four to five years.

The post war revival

In 1938, Italy's production of crude steel amounted to 2,323,000 tons. In 1956, the figure had risen to 5,908,000 tons and has been able to satisfy all her home consumption. This upward trend has been paralleled by a rapid expansion of engineering output. (In 1955, Italian engineering exports for the first time outstripped all other categories). The significance of this development has been obscured by the country's very success in recovering from the prostration caused by the war and also, to some extent, by the vigour of the world-wide industrial expansion of the last decade. Many observers have either overlooked the achievements of Italian steel or have regarded them as a natural, if creditable, operation.

It is much more than that. From the possessor of a small and inefficient industry, Italy, as will be seen from Table I, now comes eighth among the world's producers of crude steel. Indeed, it

(1) Referred to in Italy as the C.E.C.A.

almost ties for seventh place with Belgium immediately after the "Big Six". Belgium, it is true, has made even greater quantitative progress than Italy since 1938, but she started out with the advantage of a modern, compact and well-organised industry, adequate supplies of coal and easy access to iron ore.

TABLE I

THE EIGHT MAIN PRODUCERS OF CRUDE STEEL IN 1956
TO THE NEAREST THOUSAND TONS

(in tons)

United States of America	104,520,000
USSR	48,610,000
Federal Republic of Germany	23,189,000
United Kingdom	20,991,000
France	13,399,000
Japan	11,100,000
Belgium	6,375,000
Italy	5,908,000

Source: *Monthly Bulletin of Statistics*, United Nations, New York, March 1957; *Quarterly Bulletin of Steel Statistics for Europe*, Economic Commission for Europe, Geneva, March 1957.

Italy, on the contrary, has had to overcome considerable difficulties in order to create not only a larger, but a modern productive apparatus. Her iron and steel industry grew up under the umbrella of high customs protection and was born late in comparison with the industry not only of Great Britain, but also of Germany.

It was only some twenty years ago that a start was made in putting iron and steel on a sound basis. In 1933, as a result of the slump, the Government was obliged to take over a large slice of the steel sector, among others, and a State holding company, I.R.I. (the Institute for Industrial Reconstruction) was formed to administer the whole batch. More specifically, *Finsider*, a subholding of I.R.I., was made responsible for those steel firms affected. (*Finsider* stands for Finanziaria Siderurgica Steel Sub-holding Company). In 1938 Finsider formulated a plan for the modernisation of two existing steel mills and the construction of a third *ex novo*. By 1943, the first two projects — at Bagnoli, near Naples, and at Piombino opposite the island of Elba with its iron ore

mines — were ready and the third, at Cornigliano near Genoa, was almost finished. As a result, Italy was in the position of having three fully integrated Finsider plants, with a modern capacity of over 2,500,000 tons which, added to the approximately 2,000,000 tons of privately owned capacity (mostly out of date), gave Italy a global potential of over 4,500,000 tons, or almost double the pre-war figure. Moreover, the three integrated works were all on the coast — an advantage which Italy was alone among steel producing countries in enjoying.

Unfortunately, it was precisely these works which the retreating German troops plundered with the greatest thoroughness. The general mood, therefore, at the end of the war was, understandably enough, generally sombre. Nor were the difficulties solely material. There was a lack of confidence in the future of the industry owing to the fact that its traditionally heavy protection had forced up costs in those very branches, such as engineering, which might have made a vital contribution to Italy's economic development had it been possible to put them on a competitive basis (2).

This diffidence, however, was overcome by Oscar Sinigaglia (3) who was put in charge of the post-war reconstruction of the I.R.I. steel industry and who was determined to modernise and improve production in order to turn out Italian steel at costs which would enable shipbuilding, engineering and the electrical industry to compete with their foreign rivals. This decision involved the erection of up to date rolling mills even before the necessary supplies of steel were available.

Under his energetic guidance, the position gradually improved. The problem of funds was overcome, in part thanks to American aid. Much of the equipment looted by the Germans was recovered. By the end of 1947, 30,000 tons out of a total of 43,000 carried off from the Cornigliano works had been retrieved. By 1952 national production was already — at 3,535,000 tons — higher than the target laid down in the Sinigaglia Plan, of which 1,548,000 tons,

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(2) *Cf.* A. GERSCHENKRON, "Notes on the Rate of Industrial Growth in Italy: 1881-1913", in *Journal of Economic History*, Dec. 1955.

(3) *Cf.* OSCAR SINIGAGLIA, "The Future of the Italian Iron and Steel Industry", in this *Review*, 1947-48, p. 240 et seq. This scheme provided for the production of at least 3 million tons of steel, but it was confidently hoped that this figure would rise to 3,500,000 tons, or 50 per cent above the pre-war level, even after allowing for the closing down of some of the more out-of-date works.

or 45 per cent, was by Finsider plants. Much the greater part of the balance came from mills which were out of date and therefore high-cost.

Even in 1953, however, the industry was still far from having found its feet. Finsider's output of crude steel was practically the same as in the previous year, while national production as a whole had actually declined. The 1953 Report of I.R.I. voiced the preoccupations of its directors: " A heavy burden ", it observed, " weighs on the new Finsider plants — the high cost of money and... the impossibility [for political reasons]... of immediately reducing the number of personnel to the actual level of technical requirements ". " The High Authority (of the European Coal and Steel Community) has allowed producers within the... Community to align their prices with those of outside producers selling on the common market ". " In view of the rigidity of costs in the steel industry ", the Report added, " it was sometimes necessary [for foreign firms] to dispose of part of a plant's product even at a loss. Accordingly, competition in this field is particularly hard to face ".

The role of the ECSC

Yet, in spite of these ominous forebodings, conditions improved steadily from 1953 on. Thereafter, the tone was one of careful confidence and progress was steady and at times rapid. It has been argued that this expansion was due to the creation of the European Coal and Steel Community (E.C.S.C.), just as another school of thought has contended, with equal vigour, that all the trials of Italian steel are to be traced back to the machinations of Luxembourg. As so often, the truth lies between these opposite and contradictory extremes.

Figures for costs are difficult to come by, but studies by the European Coal and Steel Community suggest that the reduction in the price of Italian steel by as much as 20 to 30 per cent in 1953 was mainly due to competition from third countries such as Japan, which was reappearing on international markets. The post-Korean slump, too, helped to end the sellers' market. These factors put the squeeze on excessive profit margins and inflated labour forces, and forced down costs. Some Italian experts, however, consider that the E.C.S.C., whose impact coincided, roughly speaking, with

these developments, played the decisive part in the drop in prices. The balance of evidence indicates that the effect of the setting up of the E.C.S.C. was more psychological than real, at least in the initial stages. Whatever the exact truth of the matter, there is no question but that Italian steel producers who were still influenced by the old autarchic tradition were obliged by the prospect of acuter competition, even if only some years later, to adopt a more enterprising attitude. If this was all that the E.C.S.C. had to its credit, it would have fully justified its existence over the past four years as far as Italy is concerned.

On the other hand, one can well understand the disappointment in Italian business circles at the Community's failure to live up to the hopes — pitched perhaps somewhat high — which were entertained as regards its ability to foster the development of steel production in Italy. One of the few clear direct advantages derived by her from the new organisation has been the subsidy paid by the Community on imports of scrap from third countries which has until this spring enabled Italy to obtain such supplies at prices not too much in excess of those from E.C.S.C. countries — an arrangement from which Italy has stood to gain more than most of her neighbours, since she relies so heavily on imports of raw materials.

No such assistance was rendered as regards iron ore and coking coal imports, the great majority of which come from non-E.C.S.C. countries, although it had been originally hoped that a substantial proportion of that coal would come from the Ruhr.

And since raw materials for the production of steel (iron ore, scrap and coking coal) come to Italy to a large extent by sea, the benefits derived from the Community's measures to reduce railway costs are insignificant.

Italy's special position was, however, taken into account in other ways since, whereas all tariffs were at once abolished for other member countries, she was allowed to retain, with only slight reductions, her existing protection on finished steel (20 per cent), flat steel and bars (19 per cent), semis (13 per cent) and pig iron (9 per cent). On May 1, 1955, these figures were cut by 15 per cent and further reductions will eventually wipe them out completely by February 10, 1958. The protection has not always been effective. There have been bitter and apparently justified complaints, especially during the first two years of the working of the Common

Pool, of Community countries selling in Italy below list price, in other words, of dumping, and there is no doubt that fairly frequent recourse has been had, with much the same results, to the absorption in the price of all or part of the transport costs.

Lastly, Italy feels that more might have been done by the High Authority to finance the improvement of the steel industry's equipment. The help so far provided has been relatively small and has gone to subsidiary branches, such as the preparation of ore. Italy considers that there is a strong case for granting assistance to build up more vital sections of her steel industry. It is difficult not to feel a certain amount of sympathy with this contention. The period of less than five years accorded to Italy by the High Authority to put her steel production on a competitive basis is clearly on the short side and contrasts unfavourably with the much longer span allowed for adjustment to the Common Market. It is to be hoped, therefore, that, if the complete elimination of E.C.S.C. tariffs proves too much of a strain for Italy, special measures will be adopted to tide her steel industry over the next four or five years until it is fully mature.

Recent improvements

The unwillingness of the E.C.S.C. to approve assistance on a substantial scale to Italy is all the more regrettable since progress towards competitiveness has been constant during the last few years. Keener competition in 1952-53, followed by the present boom in steel, tariff protection (although reduced) and the transport differential have all enabled Italian steel to hold its own fairly well in the home market and even to export an increasing amount of its products. The most gratifying development, however, has been the increase in the proportion of steel produced by up-to-date firms. In 1950, for example, the contribution of the Finsider group to total crude steel output was 39.6 per cent. In 1956, the proportion had risen to 49.7 per cent. The comparative figures for pig are 55.2 and 80 per cent. The increase in the steel supplied by Finsider and other modern firms, such as Falck and Fiat, has also led to a decline in the percentage of the metal produced in electric furnaces, which has always been considerably higher than in other European countries. Between 1954 and 1956, this figure fell from

40 to 37.5 per cent, although it increased in absolute terms from 1,681,000 tons to 2,202,000 (see Table II).

TABLE II

TYPES OF ITALIAN STEEL PRODUCTION

(in thousands of tons)

	1938	1951	1955	1956
Siemens Martin . . .	1,684	1,707	3,251	3,372
Electric	628	1,321	1,988	2,202
Thomas	——	35	355	334

Source: *Quarterly Bulletin of Steel Statistics*, Economic Commission for Europe.

The trend in pig production is parallel. The proportion of blast furnace pig to electric pig (which is much more costly) has risen from 70.3/29.7 in 1951 to 84.4/15.6 in 1955 (roughly the ratio aimed at by Sinigaglia) and 87.7/12.3 in 1956.

The result of these developments has been to reduce costs in the industry as a whole and particularly in the more efficient sectors. But clearly, it would be too much to expect prices to be cut, at this stage, to approximately German or Belgian levels. At the beginning of 1956, for example, the internal price of sections (under 80 mm) was roughly 94 dollars a ton and just over 100 dollars for electric steel articles, while in Italy the figure (for electric steel goods which were the only ones quoted) was 122 dollars. The picture at the end of 1956 was rather less favourable, largely because of the repercussions of the Suez crisis, which hit Italy with particular violence owing to her dependence on supplies of certain raw materials from abroad. By December of that year, prices for sections rose by 7.14 per cent, a figure which, however only, was half way up the list of national percentage additions among E.C.S.C. countries. Holland had raised her prices by 10.65 per cent, while France had merely effected an increase of 4.6. But for other products such as rod, plate, and sheet, Italy shows the sharpest, or almost sharpest, increases. Indeed, a table published by Assider in the *Industria Siderurgica Italiana, 1956* (p. 146) reveals that the Suez affair's repercussions have set the industry back. These prices, it should be added, apply only to Martin (open hearth) steel, whereas most

of the quotations by the other countries are for the cheaper Thomas (convertible) process.

Such setbacks, though limited and probably temporary, throw into relief what is often regarded as Italian steel's most vulnerable point — its dependence on imports for a large part of its supplies. Before analysing the broader structural issues, therefore, we may do well to look more closely at this specific issue, particularly since there is a tendency in Italy to adopt, consciously or unconsciously, an approach which is coloured by autarkistic, and therefore rather pessimistic, assumptions.

Raw Materials

The main preconditions for an efficient and competitive industry have always, in the view of Sinigaglia and his school, been the creation of integrated "classical" mills and the building up of domestic sources of iron and hence of the production of pig.

The stress on integrated plants was due in part to the obvious considerations of economy resulting from an uninterrupted flow of production from raw materials to the finished product, but it also reflects the need to reduce scrap and step up the use of iron for smelting. For, whereas electric furnaces (which still account, as noted, for 37.5 per cent of Italian steel output) rely solely on scrap, hot charge plants allow of greater flexibility, since iron ore can form from 15 to 90 per cent of the metal burden.

The decision to limit the use of scrap as far as possible has proved to be no more than an elementary measure of prudence. The Korean boom had already demostrated how quickly its prices react to shortage and its speculative nature is again being brought out by present pressure on supplies. It will be remembered, in this connection, that in its *Official Gazette* (No. 17, 19 July, 1956) and in more recent pronouncements, the E.C.S.C. attaches the highest priority to the need to increase pig capacity and to curtail consumption of scrap.

A precise calculation of Italy's progress in raising the pig content of her metal burden is not easy (4). The most reliable

(4) For instance, the statistics for Italian ore do not always indicate whether they include supplies obtained from the local pyrite ash, while the figures of the Economic Commission

figures would appear to be those of the Falck Ufficio Studi in the *Sintesi dell'Industria Siderurgica Italiana nel 1955* (p. 229) (5) from which Table III has been prepared. It will be seen that there has been a steady move towards the objective laid down by Sinigaglia.

TABLE III

PERCENTAGE OF METAL BURDEN

	1950	1951	1952	1953	1954	1955	
Scrap	77.4	74.1	70.6	69.5	69.4	68.2	63.2
Iron and Iron Ore . .	21.6	24.9	28.3	29.8	29.3	30.4	35.6

Source: Falck's *Sintesi* for 1955. Adapted to take account of foundry iron included in original figure.

Indeed, if the issue is approached from another angle — that of the building up of pig supplies — it will be seen that, in spite of a continual and gratifying increase in output, that commodity is at present the weakest point in the industry. In a remarkable article (6), Armando Frumento puts pig capacity for 1957 at 2,200,000 tons against a figure for steel of about 7,400,000 tons. This is clearly inadequate. There is some consolation however, in the fact that " similar ' dissonances ' are observable throughout the whole E.C.S.C. Market " and that, by 1961, if the output of the projected Vado works is included, the corresponding figures for 1961 will be 3,900,000 and 9,300,000 tons. In other words, the pig/steel ratio will rise from 30 to 42 per cent by 1961, or, if foundry iron is deducted, the increase will be from 27 to 39 per cent.

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for Europe diverge in some important respects from those of the Italian authorities. Lastly, the tendency is to give the pig/steel output ratio, which is misleading to the extent that it does not include imports of pig but *does* include foundry iron.

(5) Unfortunately, it has not been possible to consult the 1956 volume. The Assider Analysis for that year has been used instead. Though valuable, it does not provide all types of data used in this article.

(6) In the *Rivista Internazionale di Scienze Economiche e Commerciali*, Anno IV (1957), No. 5, one of the most acute and balanced analyses of the steel industry's problems, to which the reader is referred for a more detailed account of a number of questions touched upon in the present article.

(a) *Scrap.* Until pig production reaches that level, however, Italy will have to draw heavily on scrap. Nevertheless, with the possible exception of the current year, it is doubtful whether imports need rise more than very slightly in absolute terms. For, as production of steel increases, so does the amount of circulating scrap. In 1954, the amount recovered was 1,063,200 tons. In 1955, the figure was 1,291,800 and in 1956 1,424,000 tons. The amount of domestic scrap from other sources has remained roughly stable oscillating around 950,000 tons. Nevertheless, the proportion of Italian steel scrap to total consumption has declined from 71.7 in 1951 to 51.8 in 1956. It may be expected to stay at roughly that proportion if the figures for 1955 and 1956 are any guide. The figures for these years are 2,200,000 and 2,250,000 respectively out of total consumption of 4,230,000 and 4,565,000 tons.

The trouble here is that imports have had to be paid for at speculative prices and drawn more and more from overseas suppliers, especially the United States and Canada. This development is not completely offset by the fact that France and Germany, both E.C.S.C. countries, continue to make available about half her total imports and that the Community pays Italy an equalisation allowance on imports of scrap from third countries — though no longer on such a generous scale as formerly. The position, in fact, is such as to induce to press on with the expansion of its pig production with all possible speed.

(b) *Iron Ore and Pyrites.* An increase in pig, however, depends on an adequate supply of ore and coke. The prospects for both commodities are examined below.

Frequent emphasis on Italy's shortage of raw materials has tended to distract attention from her good and expanding supply of local iron ore. Sinigaglia laid down the principle that iron ore imports should not exceed half the country's requirements. There has so far been no difficulty in keeping well within that limit. In 1955, home production of iron ore was 1,349,000 tons and imports were 836,000 tons. In 1956, production rose to 1,654,000 tons, while imports were 1,280,000 tons, mostly of a richer iron content than local supplies. The corresponding figures for home production of pyrite ash are 843,000 tons (of which 324,000 exported) and 1,100,000 (of which 367,000 exported). (This ash has an iron content of 56 per cent, which is rather higher than Italian ore).

Imports of iron ore have not only increased. An ever greater proportion has had to be obtained from distant overseas suppliers, as in the case of scrap. Practically none of the iron ore imported comes from E.C.S.C. countries and, whereas in 1951, over three quarters of foreign supplies were obtained from Algeria and Tunisia (involving a short haul and, in view of the rich iron content, a relatively small volume of shipping space), the percentage of North African ore had declined to under a quarter in 1955 and to only 14 per cent in 1956. Goa (in Portuguese India) and Turkey have now leapt into first place, followed by Sweden and Venezuela. (Cf. Table IV).

TABLE IV

MAIN SOURCES OF IRON ORE IMPORTS

(*in tons*)

Country	1954	1955	1956
Goa	43,984	148,979	353,316
Turkey	85,473	152,696	207,059
Sweden	218,294	203,464	204,769
Venezuela	———	8,856	122,006
Algeria	171,175	146,396	97,928
TOTAL IMPORTS (from all sources)	632,596	835,767	1,280,467

Sources: Assider's *L'Industria Siderurgica Italiana nel 1956*.

Yet the picture is not quite as black as it seems. One of the reasons why imports from Goa have increased is that Finsider has joined forces with a German group to work the ore in that territory. The iron content is high (62 per cent), the ore is extremely suitable for use in the blast furnaces and it is estimated that Italy will, in the not too distant future, be able to draw as much as a million tons from this source (as compared with 353,000 tons in 1956 and 44,000 tons in 1954). Nearer home, Finsider has recently acquired an interest in the iron ore mines as Fort Gouraud in Mauritania. Here, too, the iron content is high (63-66 per cent) and of the right characteristics for steel making.

Even if Finsider's ore requirements should increase (from the present figure of over 2,000,000 tons) to at least 5,000,000 tons

a year, it should still be possible for the major part of the new supplies to be obtained from the two new foreign sources and from the expanding production of Italy itself, in which the newly opened mines of Sardinia are playing an increasingly important part.

(c) *Coking coal and other fuels.* An increase in pig presupposes generous supplies of coke. Since Italy has no coking coal, she is obliged to import it. (Practically no coke is imported as such). Other Community countries, especially the Federal Republic of Germany with its Ruhr basin, are great producers of this type of coal, but there is such a shortage in relation to West European demand that Italy has been forced to look more and more to the United States for its requirements. In 1955, she obtained from that country 1,423,000 tons of coking coal out of total imports of 1,736,000 tons while 313,000 tons came from Germany. In 1956, supplies from U.S.A. rose to 1,800,000 tons (out of total coal imports from that country of 6,625,000 tons) against 460,000 from Western Germany. Here again, the rise in freights, consequent upon the Suez crisis, has imposed a heavy financial strain on Italy's steel industry. From a figure of about $10 at the end of 1955, transport per ton rose to almost $18 twelve months later.

The proportion of Italian coke production consumed by the iron and steel industry is rising steadily. In 1956, it was just under 50 per cent. In absolute terms, the amount used has increased from 839,000 tons in 1951 to 1,367,000 tons in 1955 and 1,700,000 tons in 1956. Of the increase in coke production between 1955 and 1956 of 460,000 tons, iron and steel accounted for 335,000 tons.

However, the heavier consumption of coking coal by the blast furnaces has been to a considerable extent offset by the economies in the use of other types of coal in the steel industry. There has been an increase over the past five years of about 1,230,000 of coking *coal*. But consumption of other types has declined, during the same period, from 400,000 tons to 146,000 tons.

Much more important than this latter consideration, however, is the marked upward movement in the use of gases by the blast furnaces and iron foundries. In particular, there has been a remarkable improvement in the recovery of gases from the blast furnaces and coke ovens. The total used in the whole of the steel industry in 1956 was 2,358,000,000 cubic meters, which is equal to about 600,000 tons of coal.

Last, but by no means least, is the growing importance for the steel industry of methane gas, which was discovered in North Italy just after the war and is now a vital factor in Italy's domestic sources of fuel. In 1950, only 75 million cubic meters of this gas went to the making of iron and steel. In the following year, the figure had risen to 158 million and, in 1956, it was as high as 630,000,000 — or the equivalent of 760,000 tons of coal. It is now second in the list of fuels used by the industry, though still a long way below coking and other coal.

TABLE V

SOURCES OF ENERGY USED IN THE STEEL INDUSTRY 1956

Anthracite	68,487	tons
Hard coal	71,677	"
Lignite	5,966	"
Coke and coke dust	1,702,227	"
Charcoal	7,698	"
Wood	3,165	"
Tar	42,279	"
Fuel oil	363,213	"
Methane gas	630,775,000	cubic metres
Coke oven gas	293,879,000	" "
Blast furnace gas	2,318,693,000	" "
Other gases	65,354,000	" "
Electricity	4,341	million kwh.

There are, too, a number of operational advantages attaching to the use of methane gas. It is of even composition; there is no need to build up stocks, since a system of pipelines delivers it to the door, and it leaves no ash, residue or impurity. It therefore gives an easier casting and reduces costs. It can be used for smelting steel, provided it is combined with a small proportion of fuel oil in order to make the flame more luminous. Efforts are being made to crack methane into carbon and hydrogen and thus obtain a product which will be luminous enough by itself. Experiments are also in hand by the Istituto Siderurgico to find a technique to reduce iron by methane. The prospects, therefore, of an expanding use of this Italian raw material are good.

Of the other fuels used by the iron and steel industry, electricity makes a contribution of 4,341 million kwh, which is equal to

1,700,000 tons of coal. Some 85 per cent of this is produced by local water power, while the rest is mainly thermal electricity, of which a substantial portion is generated by methane gas. The other source of energy is fuel oil which, though based on imported raw materials, is produced in Italy. In 1956, its contribution to the industry in question was 363,000 tons, or the equivalent of 550,000 tons of coal (cf. Table V).

(d) *Summing up.* In spite of certain supply difficulties, therefore, there are no real grounds for despondency. More than half Italy's scrap and about two thirds of her iron come from domestic sources, while the increase in imports of coke and coal is at least balanced by savings in other types of coal and by the rise in the volume of methane used, or oven gases recovered, by the industry.

It is not, of course, assumed that Italian materials are bound to be cheaper than foreign supplies. They do, however, ensure continuity and, by and large, if only because of cheaper transport, they are in fact usually less costly than the foreign commodity.

The development which gives greatest cause to concern is the growing proportion of both scrap and coking coal obtained from North America. As has been argued, however, such imports of scrap are unlikely to increase, and may well fall sharply, once the projected increase in Italian pig is achieved. As to coking coal, it has long ceased to be abnormal for European countries to turn to the United States in order to make good the deficit in their energy budget and, here again, there are hopes, though somewhat more tenuous, that methane may ultimately be able to replace coke in the blast furnaces.

If the question is placed in a wider perspective, it will be seen that Italy is at least as well favoured in the matter of raw materials as other steel producing countries, such as Japan, with its output of over 11 million tons in 1956 (7). The central problem underlying competitiveness is that of the overall costs of the industry, of which raw materials form an important but not necessarily decisive component.

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(7) According to the " Survey of European Steel Exports " by the Economic Commission for Europe (Geneva, 1953) it was estimated that Japan would need to import 7 million tons of iron ore and 3.25 million tons of domestic iron and coal respectively in order to increase production to 10 million tons of crude steel. It should be added that her iron ore is obtained

Structural Problems - Future Prospects

In fact, as has been convincingly argued by Armando Frumento in the article already quoted, the main factor now hampering the development of Italian steel is the inability of the blast furnaces to provide the smelters with adequate supplies. The latter, in turn, are therefore not in a position to feed in enough steel to the rolling mills. These disequilibria, however, cannot be regarded as in any way permanent and indeed, if the expansion of pig capacity proceeds according to plan, they will be eliminated by about 1961, when, as already observed, steel making iron capacity will amount to 39 per cent of steel capacity (8).

The reasons for the present disproportions within the industry are to a large extent the result of technical considerations which shaped post-war decisions. Smelting plants and blast furnaces can be erected one by one, as demand increases. It is not possible to erect half a rolling mill. It was therefore inevitable that, if Italy was to be equipped with modern plant, advantage should be taken of the special opportunities offered for reconstruction immediately after the war and rolling capacity created which was in excess of requirements at the time. Moreover, it was the blast foundries which suffered most severely during the war and it has naturally taken them more time to restore and increase their output.

It follows that the emphasis during the next four years should be placed, not on the construction of new " comprehensive " plants, but on securing a better balance between the various phases of production, on removing bottlenecks and thus ensuring a smoother flow in the processing of raw materials at all stages up to the finished steel article. If and when the present unevennesses are disposed of, it should be possible to secure a more efficient, and hence less costly, use of existing capacity, and in particular to derive full benefit from the heavy investments in the huge rolling mills.

It is not, however, merely a question of creating new capacity but of the managerial and technical skill needed both to run it

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mostly from as far afield as the United States, the Philippines and Malaya, while coking coal has also to come from the United States and in part from India.

(8) This percentage compares with that of 67.5 postulated by the O.E.E.C. in its " The Iron and Steel Industry in Europe " (1956), for future production by its member countries.

and to see that it is efficiently integrated into the industry as a whole. This process of adjustment, as Frumento observes, takes time, especially when, in the industry as a whole other teething troubles have to be overcome.

Indeed, greater efficiency ties with better balance as the central problem of the industry. Italy has in the past suffered from the excessive dispersal of steel and iron production among a large number of small, and not always efficient, firms. The multiplicity of such concerns has been stressed by all experts who have studied the field. The Stanford University team, in its valuable report on the Italian steel and engineering industries six years ago, publishes a telling graph comparing the average size of firms in U.S.A. and Italy. More recently, the O.E.E.C. report, referred to above, noted (p. 17) that steel output in Italy in 1954 was distributed among 80 companies (of which only 9 produced over 100,000 tons) and pig iron output among 21. There can be little doubt that, if the present boom should break, many of these tiny enterprises would be forced to close down or to work on greatly reduced profit margins. As it is, the proportion of national production by the bigger and more progressive firms is steadily rising and it is with them that the future of the industry must lie. This trend towards concentration, greater efficiency and lower costs should also make for competitiveness.

What will actually happen when the E.C.S.C tariffs come to an end next February is hard to say. Prophecy on such matters depends on so many considerations as to be not much more reliable than astrology. It may, however, be contended that, if the present boom continues, the adjustments resulting from the removal of protection need not be too painful. Italy, after all, is only a marginal importer and exporter of steel. If it is felt that the present writer is being too optimistic, it may be observed that Frumento, a very cautious observer, talks of a "depressing hypothesis" for 1960 whereby net imports will amount to 500,000 ingot tons. Although this state of affairs may not compare favourably with the position in 1956, when Italy became for the first time a net exporter of steel, it cannot really be regarded as catastrophic (cf. Table VI).

In Italy itself, consumption is at present rising faster than production and steel production faster than industrial production as a whole. The figure for consumption in 1956 was 6.65 million

tons and estimates for 1960 vary between 7.8 million and 8.5. The more conservative Italian economists point out that the latter estimate presupposes a rate of increase faster than that for other E.C.S.C. countries. It should be remembered, however, that Italy's

TABLE VI

INGOT EQUIVALENT OF ITALIAN STEEL IMPORTS AND EXPORTS

(semis and finished articles)

(*in thousands of tons*)

	1950	1953	1954	1955	1956	Forecast for 1960
Imports . . .	779.6	897.1	968.5	836.6	741.8	1000
Exports . . .	186.6	249.5	307.4	569.4	889.1	500

Sources: Falck's *Sintesi* for 1955 and Finsider, and, for 1960 forecast, *op. cit.* by ARMANDO FRUMENTO.

position is somewhat special, since not only is she to some extent a development country but her engineering industry, relatively speaking a newcomer to export markets, is far from having reached a stable maximum.

If, contrary to expectations, there should be even a partial slump in the next four years, Italian steel will clearly pass through a difficult phase. But there is no reason to suppose that it will not be able to survive until an upward trend returnes, particularly if E.C.S.C. relents on the question of granting assistance and cutting out dumping.

Geneva JOHN CAIRNCROSS

BANCA NAZIONALE DEL LAVORO

HEAD OFFICE: ROME

VIA VITTORIO VENETO, 119

Condensed Statement of Condition, June 30, 1957

ASSETS	(Million lire)	LIABILITIES	
Cash, Balances with Bank of Italy & Money at call	197,496.2	Capital	1,150.0
Treasury Bills	13,299.0	Ordinary Reserve Fund	9,270.0
Govt. or Govt.-guaranteed Securities	89,354.7	Staff Retirement Fund & Provident Fund	16,267.1
Other Securities	6,532.9	Deposits & Current Accounts	579,175.2
Bills discounted	201,528.3	Correspondents	57,273.1
Advances and Loans	274,283.7	Foreign currency accounts	38,399.5
Contangoes	10,614.1	Circular cheques (*assegni circolari*)	20,357.3
Due from Correspondents	35,622.0	Advances taken	480,9
Customers' liabilities for guarantees, Acceptances, etc.	100,668.7	Bills for collection	42,573.9
Miscellaneous accounts	4,502.2	Guarantees, Acceptances, etc.	100,668.7
Participations	522.0	Miscellaneous accounts	65,280.4
Premises, Furniture and Equipment	—	Unearned discount, etc.	3,048.1
		Profit as per attached account	479.6
Total	934,423.8	*Total*	934,423.8
Securities deposited by third parties	272,661.7	Depositors of securities	272,661.7
Special guaranteed accounts	10.9	Blocked accounts guaranteeing special accounts	10.9
Staff Retirement Fund & Provident Fund: Bank's securities deposited as guarantee	16,639.5	Bank's securities guaranteeing Staff Retirement Fund & Provident Fund	16,639.5
	1,223,735.8		1,223,735.8

AUTONOMOUS SECTIONS FOR SPECIAL CREDITS

SECTION FOR CREDIT TO MEDIUM AND MINOR INDUSTRIES

Capital, Reserves and Government Guarantee Fund L. 3,036,375,000

SECTION FOR HOTEL AND TOURIST CREDIT

Aggregate Capital and Reserves L. 933,437,827

SECTION FOR CO-OPERATIVE CREDIT

Capital and Reserves L. 2,707,349,269 - Government Guarantee L. 2,000,000,000

SECTION FOR MORTGAGE CREDIT

Aggregate Capital and Reserves L. 2,753,552,366

SECTION FOR CINEMA CREDIT

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Autorizzazione del Tribunale di Roma No. 2159

Stabilimento Aristide Staderini - Roma - Via Crescenzio, 2